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A Cost-Benefit Analysis on the Feasibility of Implementing A Same-Day Surgery Program at the 121st General Hospital, Seoul, Korea

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a Master Degree in Health Care Administration

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ABSTRACT

This retrospective study analyzed the factors and variables that would impact on the implementation of a same-day surgery (SDS) program at the 121st General Hospital. The 121st General Hospital serves as the primary, definitive-care medical treatment facility (MTF) for all United States (U.S.) armed forces assigned to the Republic of Korea (ROK) and throughout the Far East Pacific. It is the only health care facility in the Seoul metropolitan area that is under the direct command and control of U.S. personnel. Patients are referred to the 121st General Hospital from all over the Korean peninsula. A significant number of these patients come from the 11 outlying health care facilities under the 18th Medical Command, as well as from the 2nd Infantry Division and its area of operations. In addition, patients come to the 121st General Hospital from other countries such as Japan, Okinawa, Thailand, and China (Carden, 1998).

Cost has a major impact on "pay patients" treated at the 121st General Hospital because, in accordance with guidelines established by the Office of the Assistant Secretary of Defense (Health Affairs) (OASD (HA)) these patients are required to make payment in full prior to receiving care. In addition to the concerns relating to the cost of care for pay patients, the length of time that it takes for a patient to be categorized as "return to duty" (RTD) is of great concern to the combat and combat support unit commanders. This is especially true for those commanders assigned to the 2nd Infantry Division. The 2nd Infantry Division's concern with its RTD rate is based directly on the fact that it is the most forward-deployed division in the U.S. Army.

The bottom line for the 121st General Hospital's EXCOM as it relates to the scope of the resident's research project is to utilize a ***cost-benefit analysis (CBA)*** in making a

determination on the ***feasibility of implementing a same-day surgery program at the hospital***. Projected savings to payers were determined to be approximately $3,100,392, calculated as such: (*Average DRG Cost x 894) – (*Average SDS Cost x 894) = $3,100,392

There were 22 cases that could be clearly identified as a same-day surgery procedure, even if identification was made using the proverbial "20/20 hindsight". These particular patients were actually admitted as inpatients, treated for surgery, then discharged all within a 24-hour time period. Savings to these patients as a result of SDS billing would have equaled $76,304.90

It is feasible for the 121st to implement a same-day surgery program. Further research is needed for development, implementation, and utilization of a same-day surgery at the 121st General Hospital. Recommendations are: 1) that the hospital commander formally institute a SDS program, effective at a date to be determined, with all or a select number of appropriate surgeries being performed as part of the normal operating room procedures, intermixed with non-SDS procedures, and 2) that the utilization and effectiveness of the SDS program be assessed at the six-month and twelve-month period, with new recommendations made to the commanders as to whether the program should be continued, expanded, contracted, or discontinued.

DISCLOSURE PER ARMY REGULATION 360-5.

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1. INTRODUCTION

This retrospective study analyzed the factors and variables that would impact on the implementation of a same-day surgery (SDS) program at the 121st General Hospital. The goals are two-fold: 1) to meet the academic requirements for the administrative resident assigned to the 121st General Hospital, and 2) to make recommendations on the feasibility of establishing a SDS program at the hospital.

The 121st General Hospital serves as the primary, definitive-care medical treatment facility (MTF) for all United States (U.S.) armed forces assigned to the Republic of Korea (ROK) and throughout the Far East Pacific. The 121st General Hospital is located in the Yongsan district of Seoul, Korea. Seoul is the capital city and activity hub of Korea and its population of 10.3 million residents represent approximately 23 percent of the total South Korea population. The 121st General Hospital is the hospital base for the 18th Medical Command (18th MEDCOM). More importantly, it is the only health care facility in the Seoul metropolitan area that is under the direct command and control of U.S. personnel. As such, the hospital also treats non-military patients, such as family members, Department of Defense (DOD) civilians, military retirees, Department of Defense Dependent School (DODDS) personnel, and U.S. Embassy personnel. Patients are referred to the 121st General Hospital from all over the Korean peninsula. A significant number of these patients come from the 11 outlying health care facilities under the 18th MEDCOM, as well as from the 2nd Infantry Division and its area of operations. In addition, patients come to the 121st General Hospital from other countries such as Japan, Okinawa, Thailand, and China (Carden, 1998).

CONDITIONS WHICH PROMPTED THE STUDY

The 121st General Hospital has a dual mission that requires it to operate under both a Table of Distribution and Allowances (TDA) Augmentation and a Modified Table of Organization and Equipment (MTOE). This is due in large part to the fact that the 121st General Hospital is the only U.S. controlled and operated health care facility in the Seoul area. The mission statement for the 121st General Hospital is: to provide primary care, inpatient and outpatient specialty care, and ancillary services to authorized military and civilian personnel under conditions of armistice and hostilities. The vision statement for the 121st General Hospital follows: to take care of the patient and to take care of each other (EAMC-H Pamphlet 40-2, 1998). Although in slight contrast to its name, the 121st General Hospital is the most forward-deployed fixed MTF in the world. This makes the 121st General Hospital very unique when compared to other military hospitals.

One very noteworthy fact is that the 121st General Hospital has only one primary staff to support its dual mission. Thus, it is imperative that the 121st General Hospital's key leaders place great emphasis and effort on process improvements, facilitating maximization of potential efficiency levels. This ensures that the hospital can provide the most cost-effective, quality care to its beneficiaries on a daily basis, while continuing to maintain its combat-readiness status. This is in addition to providing support to the warfighters of the 2nd Infantry Division. There is little doubt that the 2nd Infantry Division's combat readiness status is most crucial, since they serve as the premier combat forces within the Korean theater of operations for U.S. military forces.

The 121st General Hospital's normal, day-to-day, operations are similar to a Continental United States-based (CONUS-based) medical activity (MEDDAC). The current structure of the hospital is configured as a 70-bed facility, enabling the assigned health care providers to do their daily armistice mission of providing quality inpatient and outpatient health care to the beneficiary population. Under hostile conditions, however, the hospital has the capability to expand to facilitate an additional 82 contingency beds (Denio, 1999). Looking at the 121st General Hospital from a tactical perspective, it is a tertiary-care-level MTF whose configuration in a field environment is that of a 476-bed hospital. This is made possible through use of the hospital's deployable medical system (DEPMEDS) equipment. Under hostile conditions, the hospital will set up in this mode so that it can provide the necessary medical care to the warfighting elements of the Eight United States Army (EUSA), the largest subordinate command of EUSA being the 2nd Infantry Division.

STATEMENT OF THE PROBLEM

Cost has a major impact on "pay patients" treated at the 121st General Hospital. Pay patients consist of U.S. federal civilian employees, contractors, Department of State personnel, and foreign nationals. In accordance with guidelines established by the Office of the Assistant Secretary of Defense (Health Affairs) (OASD (HA)) these patients are required to make payment in full prior to receiving care. This is not the case for other beneficiaries treated at this MTF. Other beneficiaries merely receive a retrospective charge for any subsistence provided. A caveat to this is that no patient with a true emergency medical need is turned away due to an inability to pay prior to care being provided (as would be expected). Also, if a patient can not pay for care on the day that the care is provided, a case-

by-case exception can be made at the Treasurer's Office, located within the hospital. Still, it is obvious that this procedure for paying for medical care has the potential to place financial hardships on pay patients.

Lowering out-of-pocket costs for pay patients would be a tremendous value for them. However, there are limited ways in which the 18th MEDCOM can lower out-of-pocket costs to its beneficiaries. As such, it is incumbent upon this command to research and explore opportunities to meet such demands. To this end, the leaders of the 18th MEDCOM and 121st General Hospital have attempted to be proactive in progressing the Yongsan area's community awareness/information programs, especially in the health care arena. During the quarterly townhall meetings and in other forums, the command routinely addresses community issues related to the "iron triangle" of health care: access, quality, and cost. Although the command is very concerned with improving each of these areas, and is seemingly making strides in the areas of access and quality, there are extreme limitations on meeting consumer demands for lower health care costs within this environment. This is a critical issue because, although the 121st General Hospital serves as the major medical treatment facility for U.S. citizens and military health care beneficiaries within the region, various DOD and Army regulations and policies govern it when it comes to billing those pay patients that are entitled to treatment at the hospital.

The Office of the Assistant Secretary of Defense (Health Affairs) establishes charges for medical care provided to pay patients at the 121st General Hospital. In keeping with OASD (HA) policy, all separate outpatient visits during a single day will result in a separate charge. According to the definition provided in the 121st General Hospital's Health Care Services Information Guide (August,

1999), a clinic visit occurs when the patient-provider encounter involves one or more of the following: an examination, diagnosis, treatment, evaluation, consultation, counseling, and/or medical advice. All services provided during a paid visit are included in the outpatient charge. Follow-up visits or re-appointments are chargeable, although the health care provider requests the patient to return and the condition/diagnosis is the same as that treated earlier. The only exceptions are the following: 1) for the sole purpose of verifying the success of previous treatment and no additional evaluation, diagnosis and/or treatment is provided, and 2) to remove sutures or check surgical sites, bandages, casts, etc., if no other treatment/medication is provided. This serves as a catalyst to identifying any avenues leading to cost-reduction for pay patients.

In addition to the concerns relating to the cost of care for pay patients, the length of time that it takes for a patient to be categorized as "return to duty" (RTD) is of great concern to the combat and combat support unit commanders. This is especially true for those commanders assigned to the 2nd Infantry Division. The 2nd Infantry Division's concern with its RTD rate is based directly on the fact that it is the most forward-deployed division in the U.S. Army. The 2nd Infantry Division is the fighting strength of EUSA and a major component of the Combined Forces Command (CFC). The mission of the 2nd Infantry Division is simple: to defend the Korean peninsula as an integral part of EUSA and the CFC.

Average length of stay for patients assigned to the 2nd Infantry Division is also a concern because the 2nd Infantry Division has been designated as an Authorized Level of Organization 1 (ALO 1) unit. This means that it has the highest priority for equipment fielding and personnel assignments and

replacements. Therefore, the rate at which patients assigned to the 2nd Infantry Division are returned to their units after treatment at the 121st General Hospital is crucial. This is because active duty soldiers assigned to MTOE or TDA units are counted as part of the active duty operating end-strength account for the units. This means that units will not receive replacements for their soldiers assigned as patients at the hospital. Units receive replacements only when their soldiers are placed in a medical-holding detachment. In accordance with Army Regulation 600-8-6 "Personnel Accounting and Strength Reporting" (1994), soldiers are reassigned to a medical-holding detachment when hospitalization or inpatient treatment has exceeded, or is expected to exceed, 90 days; also when the soldier is hospitalized and return to duty is not expected. The 121st General Hospital does not have a medical-holding detachment assigned to it nor under its operational control. Clearly, this has the potential for reducing the 2nd Infantry Division's overall combat effectiveness.

The Second Infantry Division

To fulfill its mission, the 2nd Infantry Division (known as the Warrior Division) has a unique warfighting capability not found anywhere else in the U.S. Army or on the Korean peninsula (Foreman & Applinario, 1999). The Division has six subordinate commands, which includes two maneuver brigades, an aviation brigade, division artillery (DIVARTY) brigade, engineer brigade, and the Division Support Command (DISCOM). The 2nd Infantry Division prides itself on being the most powerful division in the U.S. Army. Although this point is arguable, it is clear that the 2nd Infantry DIVARTY is the largest in the U.S. Army and contains more Multiple-Launched Rocket Systems (MLRS) than any

other DIVARTY. The Division has more combat power than any other division within the coalition forces.

The Warrior Division routinely trains with its Korean allies to make sure that they will be able to fight as an integrated force should hostilities with North Korea erupt. The operations tempo (OPTEMPO) is consistently high, as the division ensures its combat readiness through combined and joint exercises, equipment capability demonstrations, threat awareness training, and Division orders drills with the Division's wartime Korean units.

All of these exercises and training opportunities contribute to enhance the readiness of the 2nd Infantry Division, as well as all of the other U.S. forces on the Korean peninsula. This is where the 121st General Hospital comes into play again. Along with high unit OPTEMPO and intensified training, comes a natural potential for increased training accidents and injuries. Therefore, the 121st General Hospital plays an enormous role in providing direct patient care, patient consults, and patient evacuation for injured 2nd Infantry Division soldiers. As mentioned earlier, the RTD for patients assigned to the 2nd Infantry Division is vitally important to sustaining its combat power and effectiveness.

In its attempt to project and meet its customer's need, the 121st General Hospital currently provides an array of clinical and ancillary services to its customers (Table 1). Still, in light of the concerns mentioned above, the executive committee (EXCOM) for the 121st General Hospital (with support from the 18th MEDCOM's key leaders) has chosen to take a look at the cost-benefits and feasibility of providing yet another service for its beneficiary population: a same-day surgery program.

The hospital has a fairly new commander and deputy commander for clinical services (DCCS) and both are settling into their roles. As they work to better define their roles and responsibilities to the hospital's beneficiaries, staff, and the community at large, the hospital commander and DCCS are identifying specific areas for improvements. They are looking, especially, in the area of patient care and patient satisfaction with all elements of the aforementioned iron triangle of health care. The hospital commander and DCCS, along with the other EXCOM members (who provide invaluable historical knowledge of the customer needs and patient care issues) are actively seeking ways to better project and respond to identified needs. The EXCOM is specifically looking at opportunities to reduce costs and average length of stay for patients. Reducing the average length of stay for patients may also prove to be invaluable to the hospital's daily operations, since the hospital has slowly begun to embark upon its six-year renewal project. The bottom line for the 121st General Hospital's EXCOM as it relates to the scope of the resident's research project is to utilize a ***cost-benefit analysis (CBA)*** in making a determination on the ***feasibility of implementing a same-day surgery program at the hospital***.

Table 1. Services Provided at the 121ST General Hospital

Primary Care Services	Inpatient Units
Ambulance and Emergency Medical Services	Inpatient Psychiatry
Ambulatory Care Clinic	Intensive Care Unit
Internal Medicine Clinic	Multi Care Unit
Pediatric Clinic	Post Anesthesia Care Unit
Well Baby Clinic	Women and Infant Care Unit

Specialty Clinics – Behavioral Medicine	**Specialty Clinic - Medical**
Alcohol and Treatment Center	Dermatology Clinic
Exceptional Family Member Program	Immunization Clinic
Mental Health Clinic	Neurology Clinic
Specialty Clinics – Support	**Specialty Clinics - Surgical**
Chaplain Services	Eye, Ear, Nose, Throat Clinic
Laboratory Services	Obstetrics and Gynecology Clinic
Nutrition Clinic	Ophthalmology Clinic
Occupational Therapy Clinic	Optometry Clinic
Pharmacy Services	Oral and Maxillofacial Surgery Clinic
Physical Therapy Clinic	Orthopedic Clinic
Pre-Admission Unit	Surgery Clinic
Radiology Services	

LITERATURE REVIEW

Health Care Trends

In today's health care environment, administrators and clinicians are faced with a clear dilemma: how to improve access and control costs, while maintaining quality of care. These three elements of the dilemma (access, cost, and quality) are very much interwoven, and as such, make up what is known as the "iron triangle." Each element of the iron triangle poses a great challenge to all interested parties, which includes health care consumers, providers, payers, administrators, and others.

According to Sultz and Young (1997), limited access to health care continues to confound health care decision-makers, who work to find solutions to the problem of more than 40 million uninsured or underinsured Americans. This is while the decision-makers continue to work at solving the

health care system's problem that relates to the variations in the quality and appropriateness of much of the medical care that is provided to patients. Sultz and Young state that the uncertainty that pervades current clinical practice is far greater than most people realize. They go on to say that problems in the quality and appropriateness of a great many diagnostic and therapeutic procedures impact heavily on costs. This is an astonishing view, since at the same time, Sultz and Young state that the single most important impetus for health care reform throughout recent history has been rising costs. According to them, overall health care costs have risen from 5.3 percent of the U.S. gross domestic product (GDP) in 1960 to 13.8 percent in 1993 and over 14 percent in 1996. Sultz and Young point out the fact that unless there are significant constraints on rising health care costs, economists are predicting growth to 18 percent of the U.S. GDP by the next century.

Ambulatory Surgery/Same-Day Surgery

Although numerous processes have been implemented to deal with the elements of the iron triangle, one attempt at solving the problem of health care "cost" has been the integration of ambulatory care facilities and same-day surgery programs into the traditional health care system. *Ambulatory surgery/same-day surgery* is defined within this paper as scheduled surgical procedures provided to patients who do not remain in the hospital overnight. The researcher uses the term *ambulatory surgery* and *same-day surgery* interchangeably within this paper. Also, it should be noted that although surgery not requiring an overnight hospital stay is often performed in private physician's offices, hospital emergency departments, and free-standing, independent emergency centers, this paper addresses implementation of an *organized* same-day surgery program. An *organized* same-day surgery program,

in this case, refers to a program that is managed and governed for the primary purpose of providing same-day surgery.

According to Sultz and Young (1997), ambulatory or outpatient surgery now accounts for over half of all surgeries in U.S. community hospitals. Sultz and Young claim that in the decade of 1982-1992, outpatient surgeries in U.S. community hospitals increased over 200 percent, while inpatient procedures declined by more than 32 percent.

The rise in ambulatory surgery over the past decade and a half has, understandably, given rise to increased research in this area, as interested parties try to discern the value, or at least potential value, of ambulatory surgery. As the military health care system is not immune to rising costs, the Department of Defense has initiated and analyzed studies and reports related to health care cost-reduction. These studies and reports include those performed by graduates of the U.S. Army-Baylor University Graduate Program in Health Care Administration. Studies such as the ones conducted by Pollock (1987), Williams (1988), Lyford (1989), and Culver (1995) address the issue of military health care cost-reduction through implementation and utilization of same-day surgery programs. Therefore, portions of the researcher's methodology for this GMP closely parallel the methodology used in some or all of these reports.

Blelch (1983a) states that studies have shown that the use of ambulatory health care facilities and same-day surgery programs to treat patients on an outpatient basis have, indeed, helped to significantly reduce health care costs. These savings are, generally, realized for both the payers and the facilities providing the care. Although normally third-party payers are tagged with footing the majority of

health care costs, in many cases the patients are the primary payers. This is usually found in the cases where the patients have little to no health care insurance coverage.

The studies that show that the use of ambulatory surgery does result in cost savings for the payer are very important to health care and managed care organizations. This is crucial information for managed care organizations because their mere survival depends on their ability to manage health care costs and access to health care, while at the same time ensuring that quality health care is provided to their enrolled members. Traditional hospital organizations and physician practices must also be concerned with the success of ambulatory care centers and same-day surgery programs because competition for patients in this current cost-conscious health care environment dictates that they look for ways to maintain a market share that facilitates their viability.

The noticeable increase in ambulatory surgeries being conducted by health care providers and the reported cost-savings to payers and medical facilities warrant investigation as to how such savings are made possible and what are the pros and cons of doing same-day surgery. The obvious reason that same-day surgery is possible is that the technological advances in medicine have increased exponentially over the past 30 years. Medical intervention, diagnostic modalities, and pharmaceuticals have increased enormously. Public awareness of the medical capabilities of today's health care industry has also increased to a significant point. This has allowed individuals to live longer, recover more rapidly from surgery, and become more participative in their individual treatment plans when it comes to choosing surgery, especially in the area of elective surgery (Sultz and Young, 1997).

A major technological advancement in medicine is with the use of anesthesia. Improvements in anesthesiology have helped physicians (and other appropriate providers) enjoy rapidly expanding interest and responsibility in intensive care, prolonged respiratory support, pain control, operating room administration, and innovative developments such as ambulatory care programs. Ultra-short-acting anesthetic agents and modified techniques in conduction anesthesia have revolutionized the practice of ambulatory surgery, sending the practice to ever-increasing heights. Clearly, the age of managed care owes a great deal to the field of anesthesiology, as it continues to pave the way to more and more low-cost outpatient surgeries.

Same-day surgery is arguably the fastest growing trend in the health care industry today (Blelch, 1983a). Same-day surgery not only helps to save payers and facilities dollars, but it also helps to save patients time – and if time is money…

Although it can be shown that there are cost-savings to be realized using same-day surgery programs and facilities, it only stands to reason that any program in the medical arena would have at least some potential drawbacks, and same-day surgery programs are no exception to this rule. One of the drawbacks, seemingly, contradicts the intent of same-day surgery in that it offers an increase in negative behaviors during the scope of medical practice. A simple explanation of this statement is that an increase in the number of inpatients can be seen for some hospitals that have established a same-day surgery program. This may be due to the fact that there is no moratorium on medical schools turning out physicians. This lack of restraint also applies to schools that promote the training of "physician alternatives" (i.e., other health care providers such as physician assistants, nurse practitioners, etc. –

who also tend to be licensed and privileged to provide health care). One alibi must be given, in noting that there has been a recent focus on the need for primary care physicians, seemingly brought on by the growth of managed care organizations, rather than a continuation with the promotion of specialist training for newly conferred physicians. Still, medical schools and the like steadfastly push out health care providers at an alarming rate. This is alarming because studies, like the one conducted by the Ohio Board of Regents (Blelch, 1983a), show that with a surplus of physicians and other health care providers, there also tend to be an increased number of hospital admissions, tests, and surgeries. This problem is further magnified in the areas where the population has reached a plateau.

The link between same-day surgery and increased patient admissions is built when patients that are prime candidates for an ambulatory surgery suddenly find themselves being placed into an inpatient status (or at least targeted as such) after they have consented to an ambulatory procedure. This is not to say that physicians and other providers conspire to trick patients into a hospital stay that may not be necessary or in the best interest of the patient. However, this is to point up the fact that some health care providers more readily diminish their patients' autonomy when it comes to elective procedures by virtue of asymmetry of information. Although informed consent/informed decision is one of the primary principles that build the foundation of biomedical ethics, this is an area that offers much room for intentional or unintentional abuse of power by the health care provider (Beauchamp & Childress 1994).

The arising conflict here is that the whole cost-reduction component of same-day surgery is predicated upon shortening the patient's length of stay in the hospital. This is the main reason that many

in the health care field predict that same-day surgery programs and freestanding ambulatory surgery facilities will continue to thrive, even as the managed care environment reaches a standstill. The majority of third-party payers view same-day surgery as a cheaper alternative to inpatient stays. Yet other key facts that bolster the outlook for ambulatory surgery are that the inpatient environment is getting so heavily regulated and quite constrained by reimbursement rules.

Although an unexpected increase in length of stay can be seen for many patients who have consented to same-day surgery, the greater drawback to same-day surgery is most probably in the area of an increased potential for complications associated with post-operative care and treatment (Blelch, 1983b).

According to Blelch (1983b), Herbert E. Natof, MD, Medical Director, Northwest Surgicare Ltd. states that any surgical procedure or anesthetic could pose a potential for complications whether the patient is in a hospital setting or an ambulatory setting. However, Natof suggests that since procedures performed in the ambulatory setting tend to be simpler, the ambulatory setting perhaps offer an environment safer from complications. This is contrary to the perception of same-day surgery being analogous to the drive-thru services of fast food restaurants. As evidence, Natof cites a lower infection rate and a reduction in errors in patient identification and drug dispensing (Blelch, 1983b). Natof went on to say that, nevertheless, same-day surgery complications still occur. He states that same-day surgery complications occur most often after the patient has been discharged. He cautions that because patients are not monitored then, clear and concise post-operative instructions are vitally important.

Natof explains that complications may be attributed to surgery, anesthesia, pre-existing disease, or a combination of factors.

Additionally, putting the potential for unforeseen complications aside, there are individuals who question the validity of reports of cost-savings resulting for ambulatory surgery. Shirmer & Rattner (1998) acknowledge that the literature supporting same-day surgery programs and/or attesting to the savings produced where such programs are established continues to grow. However, they counter that carefully done studies about the relative cost-effectiveness from a societal perspective of providing specific services in an ambulatory setting are not generally available. Therefore, they argue that the requirement of cost-effectiveness is largely undemonstrated and may be in doubt for some services. Shirmer & Rattner suggest that it could be that, despite the absence of such research, ambulatory surgery is done on an ambulatory basis when it is cost-effective because market forces compel it.

Military Medicine

In its numerous aims to reduce the national deficit, Congress has repeatedly looked at ways to possibly reduce the budget for the Department of Defense. Consequently, the Department of Defense's efforts to reduce costs has led to its leaders making keen observation of the military health care system, as it has one of the greatest pulls on the defense budget. A 1995 Government and Accounting Office (GAO) report highlights the fact that the Military Health Services System (MHSS) is one of the nation's largest health care systems (Baine, 1995a). The MHSS offers health benefits to about 8.3 million people and costs over $15 billion annually (Baine, 1995a). This report on defense health care issues mentions that post-cold war contingency planning scenarios, efforts to reduce the overall size of the

nation's military forces, federal budget reduction initiatives, and base closures and realignments have heightened scrutiny of the MHSS. The harsh scrutiny relates to the size and makeup of DOD's health care system, how it operates, whom it serves, and whether its missions can be satisfactorily carried out in a more cost-effective way.

Obviously, congressional and military leaders are looking to implement cost-saving programs within the MHSS where it is feasible to do so. One of the primary cost-reduction measures has been the implementation of TRICARE, which is the military's managed care program. This program has, arguably, received as much negative feedback as positive responses from military health care beneficiaries. This makes it that much more crucial that military leaders scrutinize the pros and cons of implementing programs that impact on the services provided and morale of their customers. Clearly, for the military health care system, the patients are the primary customers, with other stakeholders being the health care providers and supporting staff, bill payers and suppliers (not all-inclusive).

In its continuing cost-reduction efforts, the military has reviewed and analyzed a plethora of studies that are centered on health care cost-reduction in the military. A considerable number of these studies were conducted in an attempt at determining the feasibility of implementing a same-day surgery program at a specific military hospital. The findings in many of these studies have resulted in many military hospitals and other military MTFs incorporating processes that reduce costs to various interested parties, which include the patients, health care organization, and third party payers. Findings of some of these studies that are potentially useful are described in the following paragraphs.

In her study to determine the feasibility of implementing same-day surgery at Brook Army Medical Center (BAMC), located at Fort Sam Houston, TX, Lyford (1989) established seven objectives. These objectives were as follows: 1) Identify and develop a list of appropriate same-day surgical procedures that can be performed at BAMC, 2) Conduct an analysis to determine if implementing same-day surgery will be beneficial in reducing Champus costs, 3) Determine the financial implications of same-day surgery and its impact upon the present system of funding, 4) Determine the financial implications of same-day surgery under the forthcoming DOD Diagnostic Related Group (DRG)-based resource allocation system, 5) Determine a same-day surgery demand forecast using previous workload data, 6) Determine the same-day surgery facility model which is most conducive to BAMC's current operating environment, and 7) Recommend a location for the physical layout of the same-day surgery areas at both Main Hospital and Beach Pavilion to include their corresponding internal designs.

Lyford's study revealed some significant findings that may be of interest to anyone considering establishing an ambulatory surgery program at a military hospital. In her study, Lyford addresses the results in a manner that correlates to her seven research objectives. However, the one finding of Lyford's study that may offer the greatest value for those interested in ambulatory surgery in a military setting provides answers to Lyford's objective #6.

Again, objective #6 was to *determine the same-day surgery facility model [that] is most conducive to BAMC's current operating environment.* Lyford found that due to the severe financial constraints imposed upon BAMC, the only logical facility model for same-day surgery at BAMC is an

integrated hospital-based unit. The program could be established quickly without requiring large capital expenditures for new construction or remodeling. Lyford determined that only a few additional resources (including staff) would be required, since the existing patient preparation areas, operating rooms, post-operative recovery areas/post-anesthesia care units (PACU), and visitor waiting areas were being used. Lyford reasoned that, moreover, BAMC would incur a minimal financial risk since only a small expenditure would be required. If the same-day surgery program failed, the usage of the associated assets could easily be converted to usage in another area.

Shirmer & Rattner (1998) describe three basic models for ambulatory surgery facilities: 1) Hospital-based unit; 2) Hospital satellite unit; and 3) Freestanding unit. The hospital-based unit is basically administered and run by the hospital, often by converting operating room and surrounding facilities previously used for inpatient surgery to an outpatient function. In terms of physical plant, the ambulatory surgery unit is often indistinguishable from the inpatient facility. In this model, scheduling and administration are intermixed with inpatient surgery, and usually, the operating room manager is orientated towards the inpatient facility. As such, scheduling conflicts and emergencies created by the inpatient unit often adversely affect the efficiency of the outpatient unit, hence negating one of the potential advantages of ambulatory surgery.

The hospital satellite unit is similar to the first model described (being attached to the hospital), but the actual facility is separate from the inpatient operating room facilities. This arrangement offers access to more sophisticated equipment and techniques by users and patients of the same-day surgery unit, because such equipment can be used in conjunction with the hospital. The drawback here is that

this arrangement often requires patient transportation to a site outside the ambulatory unit, however, which can be more time consuming, expensive, and inconvenient for the patient. Other disadvantages to this model that Shirmer & Rattner (1998) point out include the fact that there is a potential for the administration to continue to function with a "hospital" mentality, basing decisions on the traditional inpatient operating room model rather than the more efficient outpatient-type model. They also caution that parking may be a problem if the unit is attached to the hospital and hospital parking is at a premium.

Shirmer & Rattner suggest that hospital involvement is usually not helpful for the last model, a freestanding ambulatory surgery center. They go further, suggesting that the hospital administration often is counterproductive to the orientation of the ambulatory center.

In her research, Lyford only looked at the first two models described above. This is because the military health care system does not operate freestanding ambulatory clinics. Lyford found that the separated facility model, which involves having operating and recovery rooms dedicated exclusively to same-day surgery, did not appear to be feasible for BAMC. The medical center would need additional operating rooms and a large amount of additional space for pre- and post-operative requirements, recovery, and visitor waiting areas.

Another military report that one may find useful is Culver's 1995 study on ambulatory surgery utilization at Madigan Army Medical Center (MAMC). This study may be useful to researchers because it highlights the utilization of ambulatory surgery within the military health care system. As one of the seven Army medical centers, it is widely known and understood that MAMC has a much higher patient flow than Army MEDDACS. However, before Culver's study, there had been no evaluation of

the utilization of MAMC's ambulatory capability. Hence, Culver wanted to assess the level of efficiency in use of same-day surgery at MAMC. Culver found that MAMC was performing approximately 9,300 surgeries annually and of those about 3,000 were performed on an ambulatory basis. The significance of this study is that Culver concluded that there appeared to be an inappropriate use of inpatient resources, basing this on the fact that the ambulatory surgery program was not being utilized to its maximum potential.

PURPOSE

The objectives for this GMP were:

- To ascertain the feasibility of implementing a same-day surgery (SDS) program at the 121st General Hospital
- Determine the necessary requirements to implement a SDS program
- Project cost-savings for pay patients should a SDS clinic be established at the hospital
- Identify whether or not there is a statistically significant difference between the average length of stay for inpatients assigned to the 2nd Infantry Division and all other inpatients treated at the hospital
- Project expected reduction in the return to duty rate for patients and the impact on the patients' units due to implementation of a SDS program at the 121st General Hospital
- Identify any potential adverse impact that a SDS program would have on the hospital's current operations
- Clearly delineate the pros and cons of implementing a SDS program into the 121st General Hospital's environment of care (highlighting peculiarities of the Korean peninsula)

The factors and variables used in this study include the following: (a) costs associated with pay patients and a same-day surgery center and equipment; (b) number and types of surgeries performed; (c) length of stay for patients; and (d) the Korean environment of care.

2. METHODS AND PROCEDURES

This section discusses the research methodology that was used in this study. It also addresses the procedures for data collection and analysis. This section also addresses the data quality and study limitations.

DATA COLLECTION

a) Schedule/Staffing: The researcher forwarded the Graduate Management Project Proposal (GMPP) to the U.S. Army-Baylor University Graduate Program in Health Care Administration on January 10th. While awaiting approval of the GMPP, information was collected throughout the remaining weeks of January, 2000 at the 18th MEDCOM. Data collected at the 18th MEDCOM was incorporated into the cost-benefit analysis and interpretation of the results took place concurrently with statistical output (using SPSS) for a portion of the overall analysis.

b) Study design: This investigation utilized a non-experimental research design using pre-recorded data to make descriptive analyses on a number of variables collected on inpatients at the 121st General Hospital over a 12-month period. Some statistical inferences were made on a sample population of the subjects, mainly to discern any differences in two categories of patients within this sample population. The non-experimental design has been suggested for this type of descriptive study, as the objective of a descriptive study correlates to the researcher's intent for this project – to learn the *who*, *what*, *when*, *where*, and *how* of the topic of same-day surgery at the 121st General Hospital (Cooper & Schindler, 1998).

c) Subjects: The subjects of this research consist of the 3,189 patients who were seen as

inpatients at the 121st General Hospital during Fiscal Year 99. However, the main focus of this research relates to two subgroups of this population: those patients who are categorized as "pay patients" and those patients who are active duty soldiers assigned to the 2nd Infantry Division. The researcher specifically targeted these two categories of patients because the primary factors analyzed in this study (cost and average length of stay) have their greatest impact on patients falling within these categories.

d) Data: Data relating to patient visits and treatment/procedures were pulled from the Composite Health Care System (CHCS) at the 18th MEDCOM. Cost data for patient care was collected through the 121st General Hospital Treasurer's Office. The remaining data collected for this study was pulled from several sources. Cost data pertaining to staffing was collected through the 121st General Hospital Personnel Division. Specific equipment costs was gathered through both the 18th MEDCOM Deputy Chief of Staff, Logistics (DCSLOG) office and the 121st General Hospital's Logistics Division, as appropriate.

e) Validity and Reliability of the Study. The patient data collected for this study was closely screened to increase its validity and accuracy, since it has been acknowledged by the 121st General Hospital's Chief of the Patient Administration Department (PAD) that there are sometimes erroneous inputs to the CHCS database (Thompson, 1999). Along with the 121st General Hospital Medical Records Branch Chief, the researcher inspected a sample of the patients' records to validate some of the demographic data contained in CHCS for these patients. Several records were found to contain errors (Felder, 1999). Although the number of records that contained errors may have proven to be insignificant, in order to ensure maximum validity of patient data, the researcher elected to forego

collecting demographic information. Attempts to weed out records that contained demographic errors prove futile (see Limitations of the Study). This problem, related to erroneous demographics contained in the CHCS, is not unique to the 121st General Hospital's database. In a 1995 GAO report, it was revealed that analyses conducted as part of a DOD study of the Military Health Services System (MHSS) cited many problems with the MHSS information systems (Baine, 1995a). Specifically, it was found that the MHSS information system could not be relied upon to produce geographically or demographic specific analyses. This included the CHCS. Based on this information, the researcher limited the collection of data from CHCS to ensure the validity of the data utilized in this study. Therefore, the specific information extracted from the database to support this study should prove to be reasonably valid.

All patient data should be accurate, since all patients were treated at the 121st General Hospital and the data came directly from the hospital's PAD office, where the patient data is inputted into the CHCS. Anyone with CHCS capability and access to the 121st General Hospital's CHCS database should be able to retrieve the exact data (in the same format) as the researcher obtained.

DATA ANALYSIS

The researcher analyzed data pertaining to the costs associated with care provided to pay patients at the 121st General Hospital. The researcher also analyzed indirect costs, opportunity costs, and time and structural requirements for implementing a same-day surgery program at the 121st General Hospital.

All cost data was applied to the overall cost-benefit analysis (CBA) of this study. According to Getzen (1997), economics is about exchange between people and the trade-offs that they make. Getzen states that cost-benefit analysis replicates on paper the balancing of pros and cons, of advantages and disadvantages, that occurs implicitly in the marketplace. Getzen also states that costs and benefits are not intrinsic or absolute values, but relative. In keeping with this definition of costs and benefits, the researcher did a CBA to determine the feasibility of implementing a SDS program at the 121st General Hospital. Although the researcher had anticipated incorporating a make-buy analysis of all components that make up the physical requirements for a same-day surgery program, this did not seem appropriate, given the overall environment for the 121st General Hospital. The make-up of the physical requirements includes medical staff, nursing services, administrative staff, physical plant (location), equipment and supplies. The researcher weighed the pros and cons of implementing a same-day surgery program at the hospital, then assessed the feasibility of implementing such a program at the hospital should the command elect to do so.

As a CBA, generally, encompasses a cost-effectiveness analysis (CEA), Shirmer & Rattner (1998) cautions that it is important to define the perspective from which cost-effectiveness is measured, that is, to define for whom the measure is cost-effective. This is important because cost-effectiveness can be measured from a number of perspectives, which include that of the individual, a private insurance company, or the government. The critical issue here is that cost-effectiveness for one group of beneficiaries may not be cost-effectiveness for another group. An example of this is that, if costs and benefits are measured from the perspective of an insurance company or government health care

program, important costs such as patient and family member time off from work and physician travel time are, generally, ignored. Thus, as Shirmer & Rattner point out, it is quite possible that what is more cost-effective from one party's perspective (e.g., the insurance company) may be less cost-effective from another party's (e.g., the patient).

Shirmer & Rattner (1998) recommend that when deciding on performing a CBA versus a CEA, one should be cognizant of the fact that the cost-benefit approach is preferred by economists but is not commonly used in health care. They state that, in practice, cost-effectiveness and cost utility analyses are the most common tools used in the health care field. Still, performing any of these analyses, or using any of these terms with precision, requires great specificity. For this study, the CBA was made from the perspective of the DOD health care beneficiaries, particularly the two groups isolated in this study (pay patients and 2nd Infantry Division patients treated at the 121st General Hospital).

To complement the analysis of the cost data, this study surveyed all records processed for inpatients treated at the 121st General Hospital during Fiscal Year 99. This is a finite population, $N = 3,189$. Using the program, Statistical Package for the Social Sciences (SPSS), Version 7.5, the researcher conducted hypothesis testing through descriptive statistics, frequencies, comparison of means, and linear regression analysis. The independent variable for the linear regression is the *beneficiary category* for each patient, with the dependent variables being the *number of dispositions, occupied bed days, and average length of stay* for the patients.

The researcher queried the 121st General Hospital's CHCS database to gather patient data for Fiscal Year 99. The researcher analyzed the CHCS data pertaining to the following:

- Total number of patients seen at the 121st General Hospital
- Number of patients seen at each clinic within the hospital
- All diagnostic related groups (DRGs) used by the 121st General Hospital for coding patient care visits (with Relative Weighted Product (RWP) for each)
- Total number of dispositions per DRG
- Occupied bed days per DRG
- Average length of stay for patients, by DRGs
- Total number of DRGs that are appropriate for same-day surgery

These factors were used to build a descriptive picture as to the same-day surgery procedures being conducted at the 121st General Hospital. They were also used to ascertain any statistically significant difference in the average length of stay for 2nd Infantry Division soldiers treated as inpatients at the 121st General Hospital and all other inpatients during the study period. The researcher proposed that a statistically significant difference between the groups would add credibility to any argument that a same-day surgery program is needed at the 121st General Hospital. The researcher felt that failure to find a statistically significant difference would help to diminish support for the implementation of a same-day surgery program. All findings in this area were considered in the overall cost-benefit analysis for this study.

A sample, $n = 894$, was used for hypothesis testing. This sample represents those patients who were seen as inpatients at the 121st General Hospital for a surgery/procedure that qualifies as appropriate for same-day surgery, according to the list established by Blue Cross and Blue Shield of

Greater New York (Burns, 1984). Blue Cross/Blue Shield developed this list primarily to distinguish between procedures appropriate for a minor clinic or an office and procedures that are more appropriately performed under an ambulatory surgery program. This list had the specific administrative purpose of setting adequate medical charges, but it also served a somewhat unexpected additional purpose by stimulating hospital medical staffs to broaden their thinking as to the appropriate uses of ambulatory surgery. For example, surgeons who complain that a particular procedure should not be on the list because it requires two days of post-operative hospitalization may be informed that a half-dozen prestigious hospitals in the region routinely perform the procedure on an outpatient basis. This fact often can stimulate a change in physician practice (Burns, 1984).

Hypothesis testing was used to examine the independent variable, beneficiary category, as a function of three dependent variables: number of dispositions, occupied bed days, and average length of stay. It was intended that any identification of differences in the average length of stay for same-day surgery patients assigned to the 2nd Infantry Division and all other patients would be made under this hypothesis testing. The null hypothesis (H_o) states: no statistically significant difference exists between the average length of stay for same-day surgery patients assigned to the 2nd Infantry Division and all other same-day surgery patients. Conversely, the alternate hypothesis (H_a) states: there is a statistically significant difference between these two groups of patients when it comes to the average length of stay at the 121st General Hospital.

LIMITATIONS OF THE STUDY

One of the major limitations the researcher has found while conducting this study relates to obtaining historical knowledge of the hospital's previously operated same-day surgery program. The researcher identified that the hospital had operated a same-day surgery program as recently as five years ago (Nash-Teachey, 1999). However, the researcher could find no one who could provide any information as to the reasons the program was initially established or how well the program operated or the reasons the program was discontinued here at the 121st General Hospital. The lack of availability of such pertinent information is in spite of the fact that there are several individuals who have been employed here at the 121st General Hospital for five or more years. The researcher felt many of these individuals would have some type of direct, or at least indirect, connection to any same-day surgery program operated at the hospital. However, the researcher has yet to find anyone assigned to the hospital that can provide an adequate history of the previously operated same-day surgery program.

Another limitation to this study is the researcher's reliance on others to extract data from the CHCS database. The researcher desired to extract demographic data for the patients under study, but eventually elected to narrow the scope of research, due to the difficulty involved in obtaining data exactly as requested from those administrators with access to the database. The demographic data that was pulled up was questionable, so the researcher decided to conduct the study without using the narrowly defined demographic data. However, it should be fully understood that the primary scope of research was not altered as a result of this decision, since the core data needed to complete the study was made available to the researcher.

3. RESULTS

The tables, figures, and information from the data collected and analyzed highlight many of the expected findings from this research. On the other hand, there are several findings that are contrary to what the researcher expected to find. These findings are also highlighted in this section. An initial (cursory) survey of the data made certain expectations seemingly obvious and reasonable to the researcher.

Expected Findings

Some of the major findings that the researcher expected include the following:

- Adequate research would show that it is feasible for the 121st General Hospital to offer same-day surgery to patients under a cost-effective program. This may or may not include all surgeries/procedures that are generally considered appropriate for SDS.
- A same-day surgery program would offer substantial cost-savings to pay patients.
- There is a statistically significant difference between the average length of stay for active duty patients assigned to the 2nd Infantry Division and all other patients treated as inpatients at the 121st General Hospital. This expectation was based largely on the fact that the 2nd Infantry Division units are located anywhere from 10-35 miles north of Seoul.
- The Korean environment of care can reasonably support a same-day surgery program established at the 121st General Hospital.

Utility of Results

The results of this study will help the 121st General Hospital's leaders make decisions on which services should be provided to its beneficiary population. The hospital already offers a wide array of services to alleviate the potential burden that many of its beneficiaries might face should they seek health care outside of this facility. Still, this study provides the pros and cons of offering yet another service to patients – a same-day surgery program. This study shows many cost-savings and overall benefits to operating a same-day surgery program at the 121st General Hospital, while at the same time showing some of the potential downsides to establishing such a program.

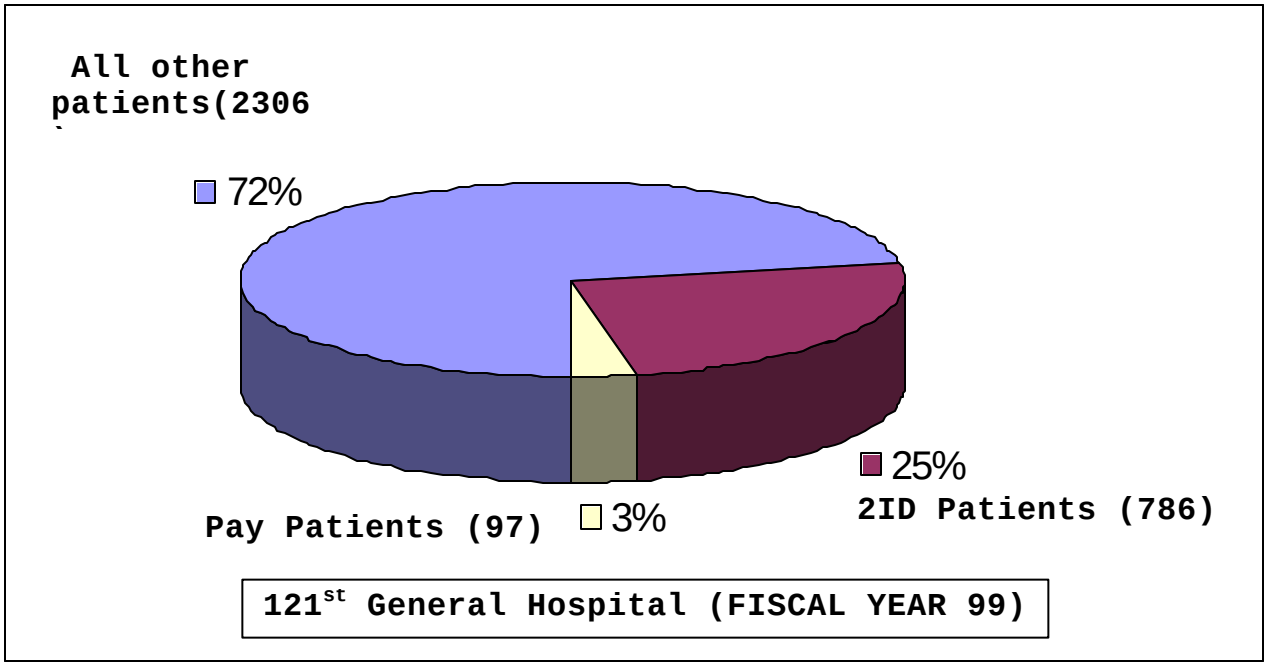
Within this paper, the researcher has made clear recommendations to the 121st General Hospital EXCOM regarding implementation of a same-day surgery program at the hospital. If appropriate, the researcher will make recommendations to the United States Army Medical Command (USAMEDCOM) that would facilitate requirements that MTFs similar to the 121st General Hospital (based on specific criteria) establish same-day surgery programs. This would help to increase both the cost-savings for beneficiary pay patients and RTD rates for active-duty service members Army-wide. Such a recommendation would be made after a follow-on study to assess the utilization of the same-day surgery program established at the 121st General Hospital.

Findings

There were 3,189 inpatients treated at the 121st General Hospital during Fiscal Year 99. Beneficiaries classified as pay patients represented 3% of the total sample (*n = 97*), patients who are active duty soldiers assigned to the 2nd Infantry Division reflected 25% (*n = 786*), while all other

inpatients made up the remaining 72% (*n = 2306*). This is the total sample that the study is based upon (Figure 1).

Figure 1. Inpatient Distribution at the 121ST General Hospital (FY 99)



The core of this research relates to the cost-savings and RTD rates that can possibly be achieved based upon the 121st General Hospital's ability to provide same-day surgery for appropriate candidates. This is in contrast to the hospital's current practice, whereby all surgery candidates are admitted into the hospital as inpatients, regardless of the anticipated length of stay and/or potential for medical complications (Thompson, 1999). Reviewing the data extracted from the hospital's CHCS

database and applying the guidelines established by Blue Cross and Blue Shield of Greater New York (Burns, 1984), the researcher identified 42 of the 294 DRGs (14%) that the 121st General Hospital treated its patients under as being "appropriate" for same-day surgery (Table 2).

Further analysis of the data for DRGs revealed that of the 42 DRGs falling under the same-day surgery category of procedures, 31 (74%) of these encapsulated the same-day surgery procedures soldiers assigned to the 2nd Infantry Division were treated under. The number of dispositions per category of patients is graphically depicted in Figure 2. As previously stated, this is of great significance because the 2nd Infantry Division serves as the fighting force of the EUSA and as an integral part of the CFC.

Again, no patients were scheduled for any type of surgery that would be performed on the same-day that the patient would also be scheduled for discharge. Still, the researcher found that there were 22 cases that could be clearly identified as a same-day surgery procedure, even if identification was made using the proverbial "20/20 hindsight." These particular patients were actually admitted as inpatients, treated for surgery, then discharged all within a 24-hour time period. All of these cases pertain to pay patients. This leads the researcher to believe that better reporting, tracking, and data extrapolation would show that there was a significantly higher number of patients who underwent surgery at the 121st General Hospital and were released within 24 hours. The pay patients mentioned here would have surely appreciated the cost-savings, had the surgery been billed as an ambulatory care procedure (Table 3). However, the hospital's treasurer (using the DOD health care billing rates), not the patients, nor the attending health care provider, determines the appropriate billing to the payer. For

more details on calculation of costs to pay patients, please see the attached appendix (121st General Hospital Health Care Services Information Guide (Excerpt)).

Table 2. List of Diagnostic Related Groups that Correlate to Blue Cross and Blue Shield of Greater New York List of Ambulatory Procedures

Code	Diagnostic Related Group
006	Carpal Tunnel Release
008	Peripheral and Cranial Nerve and Other Nervous System procedures
034	Other disorders of Nervous System with complicating conditions
035	Other disorders of Nervous System without complicating conditions
047	Other disorders of the Eye, age > 17, without complicating conditions
048	Other disorders of the Eye, age 0-17
056	Rhinoplasty
059	Tonsillectomy and/or Adenoidectomy only, age > 17
060	Tonsillectomy and/or Adenoidectomy only, age 0-17
063	Other Ear, Nose, Mouth, and Throat operating room procedures
077	Other Respiratory System, operating room procedures without complicating conditions
119	Vein Litigation and Stripping
153	Minor Small and Large Bowel procedures, without complicating conditions
160	Hernia procedures, except Inguinal and Femoral, age > 17, without complicating conditions
162	Inguinal and Femoral Hernia procedures, age > 17, without complicating conditions
163	Hernia procedures, age 0-17
225	Foot procedures
227	Soft Tissue procedures, without complicating conditions
229	Hand or Wrist procedures, except major joint procedures
230	Local Excision and Removal of Internal Fixation Devices of Hip and Femur
231	Local Excision and Removal of Internal Fixation Devices, except Hip and Femur
232	Arthroscopy
234	Other Musculoskeletal System and Connective Tissue operating room procedures
251	Fracture, Sprain, Strain, and Dislocation of Forearm, Hand, and Foot, age > 17, without complicating conditions
253	Fracture, Sprain, Strain, and Dislocation of Upper Arm, Lower Leg, except foot, age > 17, with complicating conditions
254	Fracture, Sprain, Strain, and Dislocation of Upper Arm, Lower Leg, except foot, age > 17, without complicating conditions
262	Breast Biopsy and Local Excision, for non-malignancy
266	Skin graft and/or debrid except skin ulcer/cellulitis, without complicating conditions
269	Other skin, subcutaneous tissue and breast procedures, with complicating conditions
270	Other skin, subcutaneous tissue and breast procedures, without complicating conditions
343	Circumcision, age 0-17

360	Vagina, Cervix, and Vulva procedures
361	Laparoscopy and Incisional Tubal Interrupt
362	Endoscopic Tubal Interrupt
363	Dilation and Curettage, Conization, and Radio-Implant, for malignancy
364	Dilation and Curettage, Conization, except for malignancy
380	Abortion without Dilation and Curettage
381	Abortion with Dilation and Curettage, Aspiration Curettage or Hysterotomy
441	Hand procedures for Injuries
493	Laparoscopic Cholecystectomy with common duct exploration
494	Laparoscopic Cholecystectomy without common duct exploration
503	Knee procedures, without principal diagnosis of infection

Note: The numbers highlighted in the left-hand column represents DRGs that are appropriate for same-day surgery, but no 2nd Infantry Division soldiers were treated under these DRGs.

Figure 2. Same-day Surgery Dispositions for Patients Treated at the 121st General Hospital (FY 99)

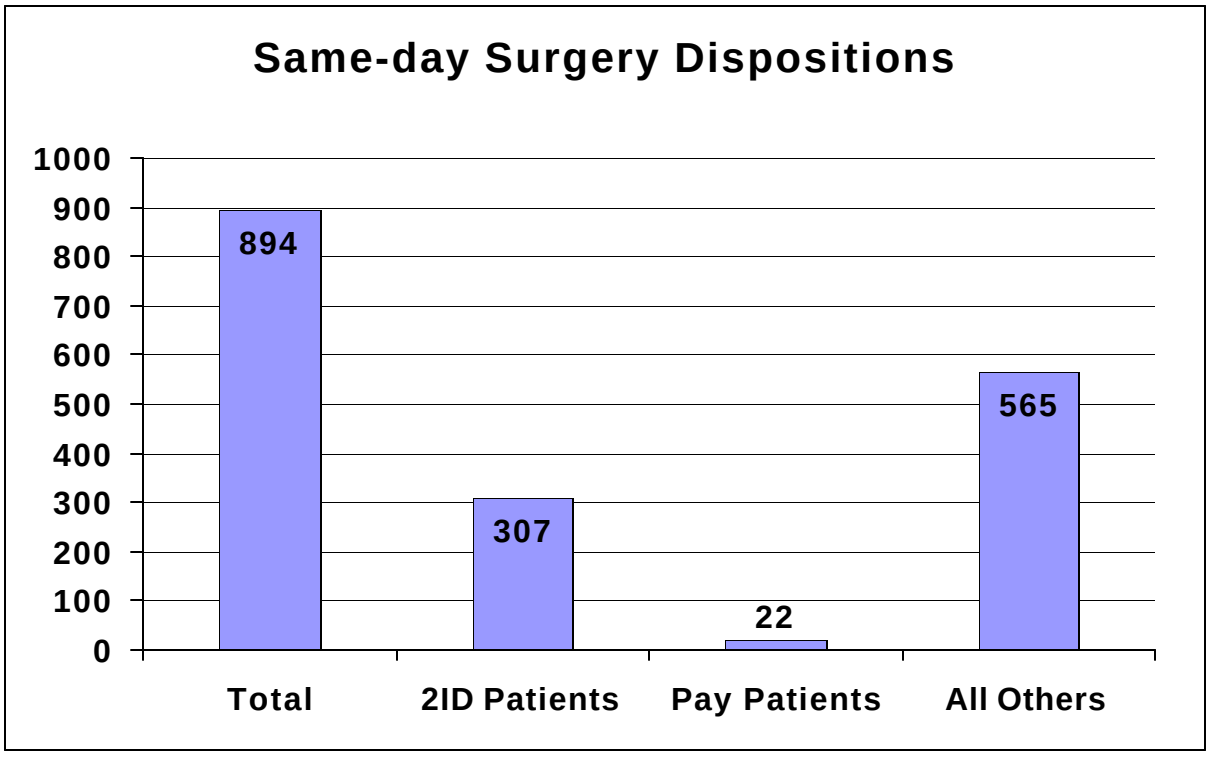


Table 3. Same-day Surgery Billings for Fiscal Year 99

Date	Status	Patients	*SDS Cost	DRG	Weight	*DRG Cost
Oct	DOD Civ	1	$691	160	0.8226	$4,618.08
Dec	DOD Civ	1	$691	229	0.8076	$4,533.87
Jan	DOD Civ	1	$1,657	160	0.9835	$6,300.79
Jan	DOD Civ	1	$1,657	276	0.4612	$3,146.64
Feb	DOD Civ	1	$1,657	262	0.6494	$4,430.68
Mar	DOD Civ	1	$1,657	364	0.6480	$4,421.13
Mar	DOD Civ	1	$1,657	262	0.6494	$4,430.68
Mar	DOD Civ	1	$1,657	40	0.9388	$6,405.18
Apr	DOD Civ	1	$1,657	187	0.6031	$4,114.79
Apr	DOD Civ	1	$1,657	40	0.9388	$6,405.18
Apr	DOD Civ	1	$1,657	225	1.0488	$7,155.68
Apr	DOD Civ	1	$1,657	158	0.7181	$4,899.40
May	DOD Civ	1	$1,657	285	0.5317	$3,627.65
Jun	DOD Civ	1	$1,657	8	0.6359	$4,338.57
Jun	DOD Civ	1	$1,657	361	1.0168	$6,937.35

Jul	DOD Civ	1	$1,657	262	0.6494	$4,430.68
Jul	DOD Civ	1	$1,657	262	0.6494	$4,430.68
Jul	DOD Civ	1	$1,657	262	0.6494	$4,430.68
Aug	DOD Civ	1	$1,657	360	0.8798	$6,002.84
Sep	DOD Civ	1	$1,657	259	0.9487	$6,472.72
	DOD Civ	20	**$31,208**			**$101,533.27**
Jun	**Contractor**	1	**$1,765**	187	0.6031	**$4,363.08**
Jun	**Retiree**	1	**$1,765**	267	0.7114	**$5,146.56**
		22	**$34,738**			**$111,042.91**

****Savings to patients as a result of SDS billing: ($111,042.91 - $34,738) = $76,304.90**

*SDS and DRG Costs were calculated and provided by 121st General Hospital Treasurer's Office (Shinn, 1999)

**See following page for calculations of medical rates.

Calculation of Medical Rates for Fiscal Year 99

Charges for services rendered to pay patients over the study period were calculated in accordance with guidelines published in Section 1095 of title 10, United States Code. In keeping with this, the Fiscal Year 99 inpatient billing rates were based on the cost per DRG, which is the inpatient full reimbursement rate per hospital discharge, weighted to reflect the intensity of the principal diagnosis, secondary diagnosis, procedures, patient age, etc. involved. The average cost per Relative Weighted Product (RWP) for large urban, other urban/rural and overseas facilities is published annually as an inpatient adjusted standardized amount (ASA). The ASA was applied to the RWP for each inpatient case, determined from the DRG weights, outlier thresholds, and payment rules published annually for

hospital reimbursement rates under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) pursuant to 32 CFR 199.14(a) (1). This included adjustments for length of stay (LOS) outliers. The published ASAs were adjusted for area wage differences and indirect medical education for the discharging hospital.

Other Relevant Findings

A quick review of Table 4 reveals that there doesn't appear to be much difference in the average length of stay for patients who are assigned to the 2nd Infantry Division and those patients who are not assigned to the Division, although the review is purely descriptive in nature. To check this, the researcher conducted a linear regression analysis ($p<.05$). The results of this analysis indicate that there is no statistically significant difference between these categories of patients.

Table 4. Number of Dispositions, Occupied Bed Days, and Length of Stay by DRG (FY 99)

DRG	Number of Dispositions		Occupied Bed Days		Average Length of Stay	
	2nd INF DIV	All Others	*2nd INF DIV*	All Others	*2nd INF DIV*	All Others
6	3	5	3	5	**1.0**	**1.0**
8	6	11	5	22	**0.8**	**2.0**
35	2	3	4	0	**2.0**	**0.0**
47	2	2	4	2	**2.0**	**1.0**
56	6	15	6	24	**1.0**	**1.6**
59	7	18	24	34	**3.4**	**1.9**
63	5	11	22	14	**4.4**	**1.3**
119	5	8	5	10	**1.0**	**1.3**
160	8	14	10	15	**1.3**	**1.1**
162	52	59	60	65	**1.2**	**1.1**
225	31	48	78	119	**2.5**	**2.5**
227	14	24	43	70	**3.1**	**2.9**
229	17	40	12	62	**0.7**	**1.6**
231	18	38	27	65	**1.5**	**1.7**
232	19	21	17	37	**0.9**	**1.8**

234	5	12	7	17	**1.4**	**1.4**
251	2	1	3	1	**1.5**	**1.0**
254	3	10	9	25	**3.0**	**2.5**
262	19	47	10	65	**0.5**	**1.4**
266	2	1	8	1	**4.0**	**1.0**
269	1	0	7	0	**7.0**	**N/A**
270	10	13	11	16	**1.1**	**1.2**
360	6	25	3	29	**0.5**	**1.2**
361	1	10	1	16	**1.0**	**1.6**
362	6	6	3	9	**0.5**	**1.5**
364	1	20	1	27	**1.0**	**1.4**
380	2	4	4	6	**2.0**	**1.5**
381	7	24	3	30	**0.4**	**1.3**
441	2	9	4	52	**2.0**	**5.8**
494	2	10	6	39	**3.0**	**3.9**
503	43	49	87	126	**2.0**	**2.6**
	307	**587**	487	1003	1.9	1.7

During an interview with the 2nd Infantry Division Surgeon, the researcher was informed that the Chief Administrator for the 2nd Infantry Division Health Care Clinic had calculated the cost of having a 2nd Infantry Division soldier as an inpatient at the 121st General Hospital as $235 per day. Additionally, the Division Surgeon cited this cost during a recent briefing to visiting GAO representatives. However, the researcher was unable to contact the Chief Administrator to ascertain the technique used to make this calculation of cost. Using this dollar amount to calculate the excess cost of care for the 2nd Infantry Division patients under study, the researcher found that the Division incurred an excess cost of $42,300.* This excess cost does not include the routine cost of care for soldiers treated at the hospital. This cost was calculated as such:

* (Occupied Bed Days) – (Number of Dispositions) x (Cost of Care) = $42,300 (see Table 4)

(487) – (307) x ($235) = $42,300

The researcher sought to identify all potential cost-savings, but found many of the attempts to determine costs to be "best-guess estimates." Therefore, the researcher relied heavily on established costs and charges for medical care to develop cost-saving projections. In order to calculate approximate cost-savings to any payer(s), to include the patient, government, insurance companies, etc, the researcher used the costs data provided by the 121st General Hospital Treasurer's Office. Projected savings to payers were determined to be approximately $3,100,392, calculated as such:

(*Average DRG Cost x 894) – (*Average SDS Cost x 894) = $3,100,392

($111,043 x 894) – ($34,738 x 894) = ($4,512,018 - $1,411,626) = $3,100,392 (*see Table 3)

Findings relevant to the actual location and/or construction of an ambulatory surgery suite include the following: 1) The 121st General Hospital Renewal Project already calls for the construction of a same-day surgery suite as part of this $86 million project; 2) For all intents and purposes, plans for the renewal/renovation are locked into place and cannot be changed; 3) The hospital will transition from a 70-bed facility to a 88-bed facility; and 4) Parking spaces located immediately around the hospital area will be reduced by approximately 120 spaces, as the renewal will increase the size of the hospital by approximately 20,000 square feet.

The bulletized list below adds more relevant findings that affect a same-day surgery program:

- The 121st General Hospital does not have a central appointments system
- The hospital currently operates a four-person self-care room, but plans to eliminate this service in the near future.
- The 121st General Hospital has four operating rooms and eight post-anesthesia care unit (PACU) beds.
- The 18th MEDCOM has established affiliations with more than 25 Korean Medical Facilities. Many of these facilities have state-of-the art medical equipment and provide excellent care to patients referred to their facilities from the 121st General Hospital.

4. DISCUSSION

General Discussion

Baine (1995a) states that one of the most crucial tasks facing the Congress and DOD as they plan for the future of the MHSS is to agree on the size and structure of the medical force needed to meet wartime requirements. According to Baine, this decision will drive the combination of military physician specialties, the number of hospitals and clinics, and the training and experience that medical personnel need to achieve the appropriate level of readiness. Baine states that subsequent decisions must also be made on the cost-effectiveness of maintaining a military medical capacity larger than that needed for readiness purposes to help meet the health care demands of non-active-duty beneficiaries.

As it pertains to all military MTFs, wartime medical readiness is the primary mission. However, caring for families and retirees makes up the bulk of services that these MTFs provide. Not surprisingly, non-active-duty beneficiaries comprise almost 80 percent of the 8.3 million people eligible for military health care. Additionally, it is anticipated that the number of eligible beneficiaries will decline only slightly through the year 2000, even as active-duty forces are reduced because the number of retiree families will increase. A major fact bearing on this problem is that active-duty members must receive nearly all of their health care in military facilities, but other beneficiaries have choices. Some use other federal programs, such as Medicare, Department of Veterans Affairs (DVA) hospitals, or civilian providers funded by DOD; others obtain care through insurance provided by their employer. However, because of these choices, and other factors such as difficulties accessing military facilities, about 25

percent of non-active-duty beneficiaries do not rely on the MHSS; that is, they receive medical care form other sources (Baine, 1995b).

In the past decade, DOD has experienced many of the same challenges confronting the nation's civilian health care services. So in response to these challenges, DOD initiated, with congressional authority, a series of demonstration programs around the country designed to explore various means by which it could more cost-effectively manage the care it provides and funds (Baine, 1995b). Some of these programs include purchasing of services from community providers when they can provide the care at a lower cost, establishing pre-admission certification procedures for admissions and days of care similar to those used by private health insurers, and implementing ambulatory surgery programs where feasible.

One government organization, the Veteran's Administration (VA), found that establishing pre-admission certification procedures for admissions and days of care similar to those used by private health insurers could save hundreds of millions of dollars by reducing non-acute admissions and days of care in VA hospitals. VA hospitals too often serve patients whose care could be more efficiently provided in alternative settings, such as an outpatient clinic or nursing home. According to Baine (1995b), a 1993 report showed that at 24 VA hospitals studied, 47 percent of admissions and 45 percent of days of care in acute medical wards were non-acute; 64 percent of admissions and 34 percent of days of care in surgical wards were non-acute. Reasons cited for non-acute admissions and days of care included non-availability of outpatient care, conservative physician practices, delays in discharge planning, and social factors.

Impact of SDS on the 121st General Hospital

Although the researcher undertook the study of two particular groups in this project, pay patients and patients who are active duty soldiers assigned to the 2nd Infantry Division, this study is intended to benefit all individuals who are authorized to receive care at the 121st General Hospital. It should be noted that, where practical, this study is also intended to help others that receive health care at MTFs get the most cost-effective, quality care possible. The findings of this study fully support the notion that it is feasible for the 121st General Hospital to offer a same-day surgery program for its beneficiaries. There are a significant number of surgeries that are being performed at the hospital with an ALOS equal to or less than 24 hours. In addition, of all surgeries performed during the study period, 28 percent of these are generally considered appropriate for same-day surgery. The cost-savings to pay patients would be significant and the RTD rate for the 2nd Infantry Division patients (SDS patients) would improve by 60 percent.

While this study shows that it is feasible to operate a same-day surgery program at the 121st General Hospital, there are several areas that should be looked at more closely. These areas are the impending Joint Commission on Accreditation of Healthcare Organizations (JCAHO) survey of the hospital, the hospital's renewal project, the fairly recent restructuring of the commands (18th MEDCOM and 121st General Hospital), and the Korean environment of care.

Currently, DOD requires all its hospitals to be accredited by JCAHO. Also, DOD officials report that military hospitals regularly score well above the national average in accreditation reviews

(Baine, 1995a). Although the 121st General Hospital is considered a "field" hospital, it is not excluded from this JCAHO accreditation requirement. As such, the hospital is currently preparing for a JCAHO survey to be conducted in April 2001. This will be only the second survey for the hospital, and it will be the first survey for the 18th MEDCOM's Integrated Health Care Organization. This survey will include the 121st General Hospital, as well as the smaller health care facilities that falls under the command and control of the 18th MEDCOM. Just to note, the hospital previously scored a 96 on the JCAHO survey. Arguably, there is an inherent pressure that the hospital's current key leaders feel to ensure that the hospital at least passes the survey in the year 2001. The fact that those studying DOD have noted variations in the quality of care around the country exacerbates the pressure to pass the impending JCAHO survey. Baine (1995a) found that the most recent DOD survey of beneficiaries for that period showed overall high levels of satisfaction with the quality of care in military facilities, but beneficiaries gave higher ratings to civilian care.

As mentioned earlier, the 121st General Hospital is undergoing an $86 million renewal project. A significant point here is that the hospital is being renovated in place. This 6-year project will have an enormous impact on many areas of the hospital and its support organizations. The project has already begun to affect the parking around the hospital area. Parking has become extremely limited since part of the grounds surrounding the hospital has been dug up. This is part of the duct-bank construction necessary to support the new structure. The renewal project currently includes plans for a same-day surgery suite to be built within the hospital. Denio (1999) states that there is little-to-no-room to make changes to the plans. Thus, the physical location for a same-day surgery program should actually come

to fruition. However, anyone reasonably knows that if solid plans, which specify the conduct of operations for use of the designated suite, are not developed, this area could quickly start serving as some other function. The unintended function that the suite would most-probably serve is as an office space. Denio also informed the researcher that nearly all of the clinical areas that are being added as part of the upgrade to the facility could be quite easily converted to administrative offices. This is in keeping with provisions incorporated into the drafting designs for the new facility.

As it pertains to doing same-day surgery in Korea, the discussions between the researcher and the Chief of Surgery and Chief of Orthopedic Surgery confirmed many of the researcher's expectations. Both surgeons agreed that the hospital could feasibly do same-day surgery without realizing an increase in post-operation complications for patients. The primary concern that both surgeons had is the living arrangements for the same-day surgery candidates. The Korean environment is unique to military personnel in that most of the soldiers, sailors, and airmen live in government barracks/quarters as bachelors or geographical bachelors. This group, as same-day surgery patients, would almost certainly be left without much assistance should they need home health care. Additionally, the Korean health care system does not provide home health care services. This is a very salient point as it relates to providing same-day surgery options for patients at the 121st General Hospital. On the other hand, nearly all pay patients living in Korea are command sponsored, with their family also living in Korea. Maybe these same-day surgery candidates are no more at risk for complications than are patients who live in the U.S. and undergo same-day surgeries. In addition, many of the soldiers that have an ALOS of one-to-two days for surgeries that are generally considered appropriate for same-day surgery and

also living alone in the barracks. These soldiers are not returning to the hospital due to complications associated with being released too soon (Thompson, 1999).

There are many pros and cons to health care facilities doing same-day surgery. As Pollock (1987) report, some of the advantages of doing same-day surgery include:

- increased potential for reimbursement by third-party payers
- a reduction in costs associated with twenty-four hour nursing staff
- reduced waiting times for surgeries
- decreased demands on the staff, due to a decrease in occupancy
- reduction in "hotel" facilities costs required for inpatients, where this includes meals, electricity, laundry service, etc.
- the shorter time spent by each same-day surgery patient in the hospital allows more patients to be treated in the facility, providing that operating theaters are available
- the hospital's average length of stay for patients is decreased as post-operative complications secondary to nosocomial infections decrease
- ability to free up nursing and other staff personnel so that they can be shifted to support more critically ill patients
- patient satisfaction with recovering at home
- less interruption of the patient's normal routine
- reduced anxiety to the patient relating to having surgery

- reduced incidental costs for patients (i.e., cost of child care when surgery is performed under an inpatient status)

Some of the disadvantages of same-day surgery that Pollock report include:

- increased workload for staff, especially nursing staff
- potential for a decrease in quality of care
- resistance to revision if problems are discovered
- hidden costs and dissatisfiers for the patients

These possible advantages and disadvantages of same-day surgery are not all-inclusive, but they can all addressed/argued in the plethora of literature that surrounds the concept of same-day surgery. However, when it comes to offering same-day surgery at a facility, one of the biggest drawbacks relates to providing lists of operations that the facility routinely perform on a same-day surgery basis and those that are generally done under an inpatient status. Insurance companies, government agencies, potential surgery candidates and others often request lists of operations that are suitable for same-day surgery. However, clinicians tend to caution against this practice because all-to-often these lists quickly become inclusive and exclusive. Whereas a vast number of surgeries are appropriate for same-day surgery centers, many of the surgeries that might be found on same-day surgery lists are better suited to be performed in a doctor's office. Still, many surgeries that are excluded from same-day surgery lists are perfectly appropriate for inpatient scheduling under certain circumstances. Basically, there are too many variables involved to permit a strict and simplified list of all procedures that should be performed in an ambulatory setting.

Also, it should not be forgotten that, although same-day surgery saves patients time and money, patients incur a greater responsibility for their recuperation. This responsibility begins prior to surgery and continues throughout the recovery period. Dianna Davis, nurse manager for the post-anesthesia care unit at the University of Washington Medical Center's Surgery Center, says that although patients are waking up faster from surgery as a result of today's faster acting anesthetic agents, it is also important that patients not underestimate the recovery period. Davis cautions that any time you receive anesthetics, there are risks involved. Anesthetics may leave you groggy for at least 24 hours after surgery, and you will not be functioning at full effectiveness during that time (Davis, 1995).

Davis states that as she works to educate her patients on their responsibilities for same-day surgery, she emphasizes the point that "just because you go home just a few hours after surgery doesn't mean you're ready to resume your normal activities." Davis advocates that patients think about what they would be doing if they had stayed in the hospital following surgery. Davis' contention is that post-same-day surgery patients should not be cooking dinner, out shopping, or any other activity that is non-conducive to facilitating recovery. These patients should be in bed, resting, with people taking care of them. Davis offers numerous tips for ensuring a smooth same-day surgery. Although pre- and post-operative preparation will vary, depending on the procedure, there are some things that everyone should do to prepare for same-day surgery. Davis recommends the following:

- Recruit someone to stay at least the first 24 hours after surgery with you, since the anesthetic will make you groggy, and you'll need someone to make sure that you get ample liquids and

nourishment, take your medication on schedule, and help you get to the bathroom. Your caregiver will be able to notice any post-operative problems that you might miss in your groggy state.

- Do a safety check around your house. Make sure that you have a clear path from your bed to the bathroom. Use a night-light or leave a light on to help you find your way at night.
- Stock the pantry. Although it's best to stay away from greasy or spicy foods, generally, you can eat whatever you can tolerate as long as it's not restricted. You should get plenty of juices, as fluids are necessary to flush the anesthetic from your body.
- If you have children, find someone who can care for them while you recuperate.
- Since it's recommended that you keep the surgery site above the level of your heart to reduce swelling, round up enough pillows to help with elevation.

Davis also suggest that if you're unable to walk around unassisted after surgery, you should practice using crutches beforehand because it's easier to learn to handle crutches when you aren't groggy and don't have an intravenous line in one of your hands. Davis warns that well-meaning family and friends can do more harm than good, especially if their constant calls and visits keep you from getting the rest you need to recover.

Burns (1984) states that there are essentially three phrases to consider when operating a same-day surgery program: pre-facility, facility, and post-facility. Pre-facility phase is generally considered the most critical step in ensuring a safely operated program. The key here is to focus on an accurate, preoperative, pre-anesthesia evaluation by the responsible surgeon or the surgeon's designated representative in collaboration and coordination with the anesthesiologist. It is crucial that the surgeon

makes a thorough assessment as to whether or not both the patient and the procedure are right for ambulatory surgery. If one or the other is not appropriate for same-day surgery, then the physician must seek an alternative solution to providing the necessary care. There are many factors to consider, as they might affect the recovery of the patient after surgery. These factors include the patient's age; the patient's residential status; the driving distance (or distance from the surgery setting to the patient's home); and the patient's physiological and psychological state. The physiological state of the patient is, perhaps, the most important factor, with the potential impact of the anesthetic agent on the patient driving this notion.

The surgeon is responsible for obtaining an accurate pre-anesthesia history and physical examination of the patient, as well as information related to the chief complaint. Surgeons not qualified or unwilling to complete this pre-anesthesia evaluation should make alternative arrangements in concert with the responsible anesthesiologist. As anesthesia use has increased, so has the willingness of anesthesiologists to participate in the preoperative evaluations. At a minimum, the anesthesiologist should have the privilege of reviewing all forms, laboratory data, and permits well in advance to the procedure so that patients with possible complexities can be identified and appropriate steps taken on their behalf. The surgeon should fully explain to the patients what is expected of them and what they will experience preceding, during, and after the surgery.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

In conclusion, this GMP *objectively* shows that it is feasible for the 121st to implement a same-day surgery program. However, this GMP merely sets the groundwork for further research into the development, implementation, and utilization of a same-day surgery at the 121st General Hospital. Review of this GMP should invoke concurrence with the administrative resident's recommendations listed below. However, regardless of the ultimate outcome, this study should prove invaluable to the 121st General Hospital's leaders. It offers yet another means to show the hospital's beneficiaries, staff, and the community at large just how the key leaders are continuously evaluating and working towards process improvements to meet the needs of their customers.

*The hospital commander can make one of five choices regarding implementation of a same-day surgery program:

1) Maintain status quo at the hospital, and do no SDS procedures; all surgical patients would continue to be admitted as inpatients, regardless of procedure to be performed

2) Institute a formal SDS program, effective immediately, with all appropriate surgeries being performed as part of the normal operating room procedures, intermixed with non-SDS procedures

3) Institute a SDS program, effective immediately, with a select number of appropriate surgeries being performed as part of the normal operating room procedures, intermixed with non-SDS procedures

4) Institute a SDS program, effective at a date to be determined, with all or a select number of appropriate surgeries being performed as part of the normal operating room procedures, intermixed with non-SDS procedures

5) Institute a SDS program effective at a date to be determined, with all or a select number of appropriate surgeries being performed in the stand alone SDS suite incorporated into the plans for the ongoing renewal project

* Contracting out all SDS to the local Korean health care facilities was considered as a possible option by the researcher. However, this option was dismissed, as it conflicts with the intent of the SDS suite scheduled to be constructed as part of the hospital's renewal project.

Recommendations

The researcher makes the following recommendations pertaining to this GMP:

1) That the hospital commander formally institute a SDS program, effective at a date to be determined, with all or a select number of appropriate surgeries being performed as part of the normal operating room procedures, intermixed with non-SDS procedures

2) That the utilization and effectiveness of the SDS program be assessed at the six-month and twelve-month period, with new recommendations made to the commanders as to whether the program should be continued, expanded, contracted, or discontinued

Given the atmosphere that currently surrounds the hospital, the researcher suggests that the most appropriate time to implement the same-day surgery program would be approximately the last part of May 2001 or the beginning of June 2001. This time-period is deemed most appropriate because it will allow the hospital to focus its efforts on one of its greatest challenges in progress, preparing to meet the JCAHO requirements for accreditation in April 2001. Replacements for many of the 18th MEDCOM's key leaders will begin to arrive in the latter part or May or early June. Most of the current leaders will be ending a two-year tour by summer 2001. The new leaders will have an opportunity to help the organization grow and prepare for the renewed facility, presumably with new or enhanced services.

Offering a same-day surgery program would help to ensure that dollars that have been appropriated for the renewal project, which includes a same-day surgery suite, are spent as intended by the government. A process action team (PAT) should be established to determine exactly which

procedures should be covered under the same-day surgery program. This would help to ensure that the program is established based on the capabilities of the hospital's providers, while minimizing the effects of personalities in the decision to offer same-day surgery.

KEY TERMS

Accreditation: Acknowledgment by an official, independent review agency (e.g., JCAHO; NCQA) that the institution or individual meets some predetermined standard of practice; required for third-party reimbursement, training of professionals, etc.

Ambulatory facility: Any facility in which you have surgery as an outpatient is an ambulatory facility.

Ambulatory surgery/Same-day surgery: Surgery performed whereby the patient arrives and leaves the facility where the surgery is performed on the same day of the operation; same-day surgery is operationally defined within this paper as scheduled surgical procedures provided to patients who do not remain in the hospital overnight.

Anesthesia: General or localized insensibility, induced by drugs or other intervention and used in surgery or other painful procedures.

Civilian Health and Medical Program of the Uniformed Services (CHAMPUS): Currently known as TRICARE Standard – One of the Department of Defense Health Program's three benefit options. No active enrollment is required. Active duty members are not eligible for this option. If family members receive care in the civilian sector without authorization from a provider at the military treatment facility, their care is covered under TRICARE Standard. It offers the larger choice of providers; however, it also incurs the highest costs. Each fiscal year, an annual deductible must be fulfilled before the government begins cost sharing 80% of the active duty family member's covered care. The sponsor's pay grade determines the amount of the deductible. After the deductible is fulfilled, the patient pays 20% of the remaining allowable charge as a co-payment. Again, the cost is higher, but the choice of providers is greater.

Composite Health Care System (CHCS): A computer data base containing privileged medical and personal data on a soldier undergoing medical review.

Confidence interval: The range of values that a population parameter could take at a given level of significance.

Continental United States (CONUS): Refers to the 48 mainland states of the U.S.A.; all states of the U.S.A., except Alaska and Hawaii.

Continuous Quality Improvement: A quality management approach that builds upon traditional quality assurance methods by emphasizing organizational and systems "processes"; A philosophy that implies that a process and its services/outcomes are never optimized.

Cost: A monetary measure of the amount of resources used for some purpose.

Cost-benefit analysis (CBA): A set of techniques for assisting in the making of decisions, which translates all relevant concerns into market (dollar). According to Shirmer & Rattner (1998), when performing a CBA, individuals are asked questions such as, "Relative to the treatment extending your life 1 year, how much more would you be willing to pay for an insurance policy that covers a treatment that extends your life 2 years but causes blindness?" The results of this analysis are expressed as a "net benefit."

Cost-effectiveness analysis (CEA): Comparison of the costs of different ways of achieving an objective. It is similar to CBA, except that CEA does not require benefits to be expressed in dollar terms.

Cost Utility Analysis: Cost utility analysis attempts to refine the measurement of the benefits of a treatment by measuring the relative value to the individual of life under different circumstances by asking questions such as "Given a choice between a full year of life with blindness and some number of months with full functioning, how many months of full functioning would leave you indifferent between the choices?"

Credentials: Documented evidence of licensure, education, training, experience, or other qualifications.

Criterion-related validity: This reflects the success of measures used for prediction or estimation.

Cronbach's a **:** If the items are standardized (have a standard deviation of 1), the reliability coefficient is based on the average correlation of items within a test. If the items are not standardized, it is based on the average covariance among items. Negative values for alpha (α) occur when the average interitem correlation is negative, which violates the reliability model.

Dependent variable: A variable that is caused or influenced by another.

Diagnostic Related Groups (DRGs): Classification scheme that categorizes patients who are medically related with respect to diagnoses, presence of a surgical procedure, age, sex, and presence or absence of significant comorbidities or complications and who are statistically similar in their length of stay; form of prospective reimbursement system used by HCFA for Medicare recipients, as well as some states and private health plans for contracting purposes since October 1, 1983.

Factor: One of the elements contributing to a particular result or situation.

Fiscal Year: Any yearly period established for accounting purposes; traditionally, this period

has been from 1 October of a given year through 30 September of the following year.

General anesthesia: An anesthesia that will allow you to sleep through the entire operation.

Independent variable: A variable that presumably exerts an influence on or explains variations in the dependent variable.

Informed consent/Informed decision: Consent sufficient to meet the requirements of law, where medical care is provided.

Inpatient: A patient who is admitted to a medical facility with the intent of staying at least for one overnight period.

Iron triangle: A term used in the health care arena to show the relationships between the ability to access health care, the quality of health care provided, and the cost of health care; this term is generally used to show the dilemma associated with trying to meet the consumers' demand for improvements in each area (usually simultaneously).

Linear regression: A statistical procedure used to estimate the linear dependence of one or more independent variables on a dependent variable.

Make-buy analysis: A financial analysis to ascertain whether it is more cost-effective to make a product (or offer a service) in-house or purchase the product/service from a vendor.

Medical Treatment Facility (MTF): Refers to the military medical health care community and its regent military medical activities and communities.

Null hypothesis: The hypothesis to be tested. It is a statement that no difference exists between the parameter and the statistic being compared to it.

Opportunity cost: The highest-valued, next-best alternative that must be sacrificed to attain something or to satisfy a want.

Organized ambulatory/same-day surgery program: An ambulatory/same-day surgery program that is managed and governed for the primary purpose of providing same-day surgery.

Outside the Continental United States (OCONUS): Duty assignments based outside the forty-eight mainland states of the U.S.

Pay patients: The category of patients authorized medical care at an MTF, but are required to pay for the care provided. Pay patients pertaining to the 121st General Hospital include all federal employees (non-military), United States Embassy personnel, invited contractors, and technical representatives. Charges for services rendered to pay patients are calculated in accordance with guidelines published in Section 1095 of title 10, United States Code (see Appendix for determination of charges to be paid).

Physician alternative: Other health care providers such as physician assistants, nurse practitioners, optometrists, etc.; these providers also tend to be licensed and privileged to provide health care.

Plastic surgery: Cosmetic surgery - generally, elective, microscopic procedures which tends to be lengthy.

Population: A well-defined collection of persons, objects or events.

Privileges: The process whereby a specific scope and content of patient care services (that is, clinical privileges) are authorized for a health care practitioner by a health care organization based on evaluation of the individual's credentials and performance.

Process Action Team (PAT): A group of subject matter experts or educated personnel who pool resource materials together to achieve certain goals, normally to establish or improve upon a process.

Psychometrics: Divination of facts concerning an object or its measurement.

P-Value: The statistical significance level is the conditional probability that a relationship as strong as the one observed in the data would be present if the null hypothesis were true.

Quality: Distinguishing characteristics that determine the value, rank, or degree of excellence or expectation.

Reliability: Precision, efficiency, measuring the variable right. Measuring if the hypothesis can be tested under similar circumstances with the same instrument time and time again.

Return to duty (RTD): A personnel accountability status used to tracked/report a soldier who has been treated at an MTF (whether or not medical intervention was needed), then cleared to return to his/her unit (oftentimes with limitations annotated by a physical abilities profile).

Same-day surgery: See Ambulatory Surgery/Same-day Surgery (#3 above).

Sample: A subset of a population.

Statistical Package for the Social Sciences (SPSS) 7.5: Statistical software package used in computing complex statistical equations, Version 7.5.

Table of Distribution and Allowances (TDA): Resource allocations normally applied to fixed facilities (non-deployable military organizations).

Table of Organization and Equipment (TO&E): Resource allocations normally applied to deployable military organizations.

Total Quality Management (TQM): Management system fostering continuously improving performance at every level of every function by focusing on maximization of customer satisfaction.

Twenty-twenty (20/20) hindsight: Perfect recognition of the nature or requirements of a situation, event, etc., after its occurrence.

Type I Error: Rejecting the Null Hypothesis when it is true.

Type II Error: Accepting the Null Hypothesis when it is false.

Validity: Accuracy, effectiveness, measuring the right variable.

Variable: A characteristic of interest – one that can be expressed as a number – which is possessed by each item under study. The value of this characteristic is likely to change or vary from one item in the data set to the next.

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APPENDIX

121st General Hospital Health Care Services

Information Guide (Excerpt)

1 August 1999

Who is a Pay Patient?

Pay patients consist of US Federal Civilian Employees, Contractors, Department of State Personnel, and foreign nationals. Eligibility for treatment in a military medical Treatment facility (MTF) does not imply that the patient receives medical care free of charge or is not charged for the care that is received.

What do I do on the day of my appointment?

On the day of your appointment report to the Business Office window 20 minutes before your scheduled appointment time. The Business Office staff must process and collect payment prior to your being seen in the clinic. They will provide you with DA Form 3154, MSA Invoice and Receipt, an Attending Physician's Statement, and a letter for your insurance company which explains the limitations the MTF has in regards to providing an itemized bill. Your paperwork is now complete. If the visit is deemed non-chargeable, the Business Office staff will stamp and initial the documentation in your Outpatient Health Record. The Business Office Staff will pull your Outpatient Health Record and you can attend your appointment.

If you report straight to the clinic, they will not see you. You must have a Business Office stamp or the DA Form 3154, MSA Invoice and Receipt and your outpatient Health Record in order to be seen. The only time this is waived is for Emergencies.

What happens when I present to the Emergency Room after hours?

If it is after hours, you report straight to the emergency room. As you are signing in (in-processing) at the front desk, you will be asked to go to the Admissions & Dispositions desk to complete the necessary billing paperwork. They will have you complete a pay agreement form. The bill for this visit will be mailed to you on the following business day. If you are an urgent or emergent patient, the clerk will be paged and obtain the necessary information in the Emergency Room. If you have questions feel free to contact the Business Office at 737-3685 or commercial 7917-3685.

Follow-up visits and referrals from the Emergency Room are two different categories for billing. Follow-up is returning to the Emergency Room for the same problem on the same day and is not chargeable. *If a repeat visit is on a different day or to a different specialty then it is chargeable.*

How do I obtain reimbursement from my insurance company?

The patient is responsible for filing a claim for reimbursement from their individual private medical insurance. The Business Office has provided the DA Form 3154, MSA Invoice and Receipt, an Attending Physician's Statement, and the a letter for your insurance company which explains the limitations the MTF has in regards to providing an itemized bill. Forms for filing these claims must be obtained from the insurance company. We do not have them nor do we have access to obtain them. Forms are unique for each individual company. If the insurance company requires a copy of the medical documentation, the patient needs to stop by the Business Office and fill out a DA Form 5006-R, Authorization for Disclosure of Information. This form gives the hospital authorization to copy confidential medical information. A spouse can not fill out a release form for any family member over the age of 18.

How do I get an appointment?

121 General Hospital operates a decentralized patient appointment system. That is, each clinic makes its own appointments. Routine medical care appointments can be scheduled by calling the Acute Care Clinic, 737-8205/8491. The Acute Care Clinic provides comprehensive primary medical care. Adult and adolescent acute medical conditions including women's wellness exams will be seen on an appointment basis. Other specialties within the hospital operate on a referral basis by appointment only. Patients must have a consultation sheet SF 513 in order to be seen in those clinics. Other specialties include:

Who establishes the billing rates?

The Assistant Secretary of Defense memorandum, dated 29 March 1995, directed that a pay patient would be charged for each outpatient visit.

Section 1078 of Title 10 U.S.C. prescribes the establishment of fair charges for medical and dental care provided to family members under Title 10 U.S.C. 1076. These charges are to be applied equally to all classes of family members. Inpatient charges are per diem or Diagnosis Related Group (DRG) based rates depending on the patient category. Outpatient charges are per visit rates according to the type of services or procedures provided.

The Under Secretary of Defense (Comptroller) establishes rates annually and distributes them on 1 October of that year. Any questions concerning the policy or cost should be directed to:

Office of the Secretary of Defense
Health Affairs
Skyline Five, Suite 810
5111 Leesburg Pike
Falls Church, Virginia 22041-3206

What is a Chargeable Visit?

The application of charges is subject to guidance issued by the Office of the Assistant Secretary of Defense (OASD-HA). This guidance allows certain operating requirements unique to DOD MTFs. Local judgement will apply in determining whether a charge is proper. DOD MTFs may provide health care services to some categories of non-entitled patients (for example, DOD civilians overseas) on a reimbursable basis. Reimbursement must be calculated to represent the full cost of the services provided. If a reimbursement rate has not been established for a particular service, the MSA office cannot bill for that service.

All separate outpatient visits during a single day will result in a separate charge for each visit. (E.g. If a patient was diagnosed at Troop Medical Clinic X and was referred to 121 General Hospital, both charges are to be billed.) Failing to charge each visit received during the same day means that the facility will not recover the full cost of services rendered. *The only exception to this rule is when a patient visits the same clinic multiple times in the same day. In this case, they are charged for one visit at the rate for that clinic.*

Follow-up visits on subsequent days are chargeable unless the sole purpose of having the patient return is to verify the success of the previous treatment and no additional treatment is provided. The following services are not chargeable:

- Check-in at sick call to make an appointment for a visit on a subsequent day.
- Prescription refills and/or renewals when consultation or evaluation by a healthcare provider is not required. (New prescriptions of controlled drugs obtained without the patient seeing a doctor are considered refills.)
- Consultations and advice given at the same time as the results of vaccinations and tests such as the PPD, Mammogram, or Pap. (A follow-up consult with a new provider is chargeable i.e. Gynecology, Internal Medicine, or General Surgery, etc)
- Telephone discussions
- Weight checks
- Blood pressure checks requested by the physician as follow-up treatment
- Follow-up visits for the sole purpose of checking bandages, dressings, sutures, and casts

- Removal of sutures or casts
- Vision tests for driver's licenses
- Verification of physical profile series
- Family member school children's visits to public health nurses who are located at the school and who are employees of the medical facility
- Physical examinations provided to prospective family members (pre-adoptive only) of Uniformed Services beneficiaries
- Physical examinations required for enlistment or induction into the Service or application to one of the Service academies. (must provide documentation)
- Collection of specimens for blood and/or alcohol tests performed at the request of military police
- Patients admitted as inpatient when the admissions result from an outpatient visit on the same day

When a DOD MTF refers federal civilian employees and their family members to a Korean medical facility for test, treatment, or admission, the patient/sponsor should pay the Korean medical facility directly.

Dental Care

When dental care is available, each procedure, is normally a chargeable visit. Dental charges are calculated by the Diagnostic DOD weight multiplied by the fiscal year DOD per dental rate.

If a patient visits both a medical clinic and a dental clinic on the same day, both clinics' visit is a chargeable visit.

Immunizations

Unless superseded by DOD Instructions or guidance from higher headquarters, federal civilian employees and their family members engaged in foreign duty under military sponsorship would receive immunizations required for entry by the foreign country in which they are working.

Country specific immunizations are administered at military installations without charge upon presentation of official order or authorization.

School teachers, child care workers, and children attending DOD sponsored schools and day care centers or similar facilities on military installations, as a condition of their employment or attendance at these facilities, are administered appropriate vaccines against influenza, measles, mumps, rubella,

tetanus, diphtheria, and polio, unless they are already immune based on documented receipt of vaccine series or physician-diagnosed illness.

At Army installations having Medical Treatment Facilities that provide occupational health services authorized by AR 40-5, these immunizations are provided without charge to DA civilian employees. They are paid from appropriated, or non-appropriated funds for those authorized to receive the services listed. (Note: The cost will be paid by the receiving agency and handled as an automatic reimbursement by the MTF providing the service).

A per case or per shot rate is established for immunizations when given in conjunction with a chargeable outpatient visit no extra charge will be made for each shot or dose.

Services provided under the Occupational Health Service Program for U.S. employees will be supported without charge to the individual employee. (However, the receiving agency (other DA civilians) will be responsible for transferring funds to cover the cost of the immunization.

Worker's compensation patients will be supported without charge to the worker. The patient must present documentation.

Patients admitted and discharged on the same day by an inpatient medical facility will not be charged the outpatient rate. Rather, they will be charged the appropriate daily inpatient rate.

Confidential medical care and advice provided adolescent family members of Federal civilian employees, at authorized teen clinics and youth health centers, will not be chargeable.

Public health measures will not be charged when the area military commander, upon recommendation of their principal medical staff officer, determines that such measures are required in the interest of the health of the area. Public health measures include services that are recognized and accepted by health authorities as preventing the spread of communicable, environmental, and industrial diseases, and reducing the common risk to a given disease. Included are:

- Immunizations prescribed by health authorities
- Interview, examinations, and follow-up of close contact with tuberculosis, venereal disease, meningococcal meningitis, viral hepatitis, and other communicable diseases.
- Detection and treatment of drug, alcohol, and other substance abuse.

Biological tests associated with epidemiological surveys. Influenza and other vaccinations, therapeutic or desensitization (allergy) injections and PPD tests for tuberculosis are considered immunizations.

For pay patients, the applicable outpatient rate or the immunization rate will be charged for examinations or immunizations furnished other than in connection with inpatient or public health care.

Prescriptions

Prescriptions may be written according to the limitations of the chart below. Exceptions to these limitations will be considered on an individual basis. Prescribing to the maximum quantities should be reserved for those patients who are being well managed on relatively safe medications.

Category	Maximum Quantity per Rx	Maximum Refills per Rx	Refills will be Honored for:
Acute Medication	30 days	5	1 year
Chronic Medications	90 days	3 to 11 depending on Rx up to 1 year	1 year
Schedule II Narcotic	14 days	0	0
Schedule II non-narcotic	30 days	0	0
Ritalin, Dexedrine, & Cylert	90 days	0	0
Schedule III-V	30 days	0	0
Schedule III-V seizure medications	90 days	0	0
Antituberculosis medications (Adult)	35 days	0	0
Antituberculosis Medications (children)	90 days	0	0
Over the Counter Medications	2 units	5	1 year

Ambulance Charges

Ambulance charges are based on full hours and 15-minute increments of service. Providers should calculate the charges based on the number of hours (or fraction thereof) that the ambulance is logged out on a patient run. Fraction of hours should be rounded up to the next 15 minute increment (i.e., 31 minutes becomes 45 minutes).

Aeromedical Evacuation

When a government employee is classified as a patient requiring Aeromedical evacuation by medical authority and authorized government transportation entitlements according to the Joint Travel Regulation, Volume 2 Aeromedical evacuation may be provided from overseas to CONUS hospital or between medical facilities overseas, or in CONUS. Reimbursement shall be made by the employee's agency to the Air Mobility Command for all Aeromedical evacuation services provided.

FY 2000 Billing Rates

Outpatient Rates

The outpatient visit rates are calculated per visit using columns 4 and 5. Column 4, "Interagency & Other Federal Agency Sponsored Patients" is used if you are a DOD employee. Column 5 is "Other" is used if you are a contractor. The amount is per visit for whichever specialty you have visited. The rate is not based upon the diagnosis of your visit instead it is based upon the MEPRS code corresponding to the service which you have visited. This rate is all-inclusive (includes all laboratory, radiology, or prescriptions given at the time of the visit).

MEPRS Code	Clinical Service	International Military Education &Training (IMET) Rate	Interagency & Other Federal Agency Sponsored Patients	Other (Full/Third Party)
Medical Care				
BAA	Internal Medicine	104.00	194.00	204.00
BAB	Allergy	53.00	99.00	105.00
BAC	Cardiology	87.00	163.00	172.00
BAE	Diabetic	61.00	114.00	121.00
BAF	Endocrinology (Metabolism)	102.00	190.00	201.00
BAG	Gastroenterology	146.00	272.00	287.00
BAH	Hematology	179.00	334.00	352.00
BAI	Hypertension	106.00	198.00	208.00
BAJ	Nephrology	208.00	387.00	409.00
BAK	Nuerology	121.00	225.00	238.00
BAL	Outpatient Nutrition	42.00	79.00	83.00
BAM	Oncology	134.00	250.00	264.00
BAN	Pulmonary Disease	153.00	285.00	301.00
BAO	Rheumatology	101.00	188.00	199.00
BAP	Dermatology	78.00	146.00	154.00
BAQ	Infectious Disease	178.00	332.00	350.00

BAR	Physical Medicine	83.00	155.00	163.00
BAS	Radiation Therapy	128.00	238.00	251.00
BAT	Bone Marrow Transplant	115.00	214.00	226.00
BAU	Genetic	367.00	683.00	721.00
Surgical Care				
BBA	General Surgery	148.00	276.00	291.00
BBB	Cardiovascular & Thoracic	320.00	595.00	628.00
BBC	Nuerosurgery	173.00	323.00	341.00
BBD	Ophthalmology	90.00	168.00	177.00
BBE	Organ Transplant	399.00	742.00	783.00
BBF	Otolaryngology	106.00	197.00	207.00
BBG	Plastic Surgery	131.00	244.00	258.00
BBH	Proctology	84.00	157.00	165.00
BBI	Urology	112.00	209.00	221.00
BBJ	Pediatric Surgery	167.00	311.00	328.00
BBK	Peripheral Vascular Surgery	78.00	146.00	154.00
BBL	Pain Management	97.00	180.00	190.00
Obstetrical &Gynecological Care				
BCA	Family Planning	57.00	106.00	112.00
BCB	Gynecology	89.00	165.00	175.00
BCC	Obstetrics	74.00	138.00	146.00
BCD	Breast Cancer Clinic	184.00	342.00	361.00
Pediatric Care				
BDA	Pediatric	62.00	115.00	121.00
BDB	Adolescent	65.00	122.00	129.00
BDC	Well Baby	42.00	79.00	83.00
Orthopedic Care				
BEA	Orthopedic	93.00	174.00	183.00
BEB	Cast	59.00	110.00	117.00
BEC	Hand Surgery	69.00	129.00	136.00
BEE	Orthotic Laboratory	67.00	125.00	132.00
BEF	Podiatry	56.00	105.00	111.00
BEZ	Chiropractic	25.00	47.00	50.00
Psychiatric and/or Mental Health Care				
BFA	Psychiatry	124.00	230.00	243.00
BFB	Psychology	93.00	174.00	184.00

BFC	Child Guidance	57.00	105.00	111.00
BFD	Mental Health	104.00	194.00	204.00
BFE	Social Work	102.00	190.00	200.00
BFF	Substance Abuse	99.00	184.00	195.00
Family Practice/Primary Care				
BGA	Family Practice	74.00	138.00	146.00
BHA	Primary Care	77.00	143.00	151.00
BHB	Medical Examination	80.00	148.00	156.00
BHC	Optometry	50.00	93.00	98.00
BHD	Audiology	35.00	65.00	69.00
BHE	Speech Pathology	101.00	188.00	199.00
BHF	Community Health	66.00	123.00	130.00
BHG	Occupational Health	73.00	136.00	143.00
BHH	TRICARE Outpatient	56.00	104.00	109.00
BHI	Immediate Care	107.00	200.00	211.00
Emergency Care				
BIA	Emergency Care	126.00	234.00	247.00
Flight Medical Care				
BJA	Flight Medicine	88.00	164.00	173.00
Underseas Medical Care				
BKA	Underseas Medicine	43.00	79.00	84.00
Rehabilitative Services				
BLA	Physical Therapy	41.00	77.00	81.00
BLB	Occupational Therapy	61.00	114.00	120.00
Ambulatory Procedure Visit (APV)				
BB	Surgical Care	937.00	1,740.00	1,836.00
BD	Pediatric Care	233.00	430.00	454.00
BE	Orthopaedic Care	1,179.00	2,192.00	2,313.00
	All other B Clinics not	430.00	797.00	841.00
	included above (BA, BC, BF, BG, BH, BI, BJ, BK, and BL)			
Other Rates & Charges				
FBI	Immunizations	16.00	30.00	32.00
DGC	Hyperbaric Chamber	153.00	285.00	301.00
FEA	Ambulance	62.00	116.00	122.00
Air Evac Services-Ambulatory		195.00	364.00	384.00
Air Evac Services –Litter		567.00	1,056.00	1,114.00
Observation Services-hour		17.00	31.00	32.00

Inpatient Rates

Inpatient rates are based on the cost per Diagnosis Related Groups (DRG), which is the inpatient full reimbursement rate per hospital discharge weighted to reflect the intensity of the principal diagnosis, secondary diagnoses, procedure, patient age, etc involved. The DOD cost to be charged is factored by multiplying the Per Inpatient Day or DRG RWP by the Direct Care Inpatient Reimbursement Rate.

Per Inpatient Day	International Military Education & Training (IMET)	Interagency & Other Federal Agency Sponsored Patients	Other (Full/Third Party)
Burn Center	3,080.00	5,529.00	5,840.00
Surgical Care Svcs (Cosmetic Surgery)	1,411.00	2,533.00	2,675.00
All other Inpatient Services	Rates are based on Diagnosis Related Groups (DRGS) Relative Weighted Product (RWP)		
FY00 Direct Care Inpatient Reimbursement Rates			
Large Urban	2,921.00	5,498.00	5,775.00
Other Urban/Rural	3,236.00	6,532.00	6,883.00
Overseas	3,606.00	8,520.00	8,941.00

NOTE: Some Republic of Korea (ROK) Army Personnel are eligible to receive care in U.S. military health care facilities in Korea; however, the terms of the memorandum of agreement will outline the appropriate charges and billing procedures.

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(*for information contained in this appendix*)

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DOD 4515.13-R, Air Transportation Eligibility, Nov 1994

DOD 6010.15-M, Military Treatment Facility Uniform Business Office Manual, 14 Apr 1997

Tab I-1 through Tab I-15, Medical and Dental Services, Fiscal Year 2000

EAMC Circular No. 40-99-1, Application of Pay Patient Billing Policy, 26 Mar 1999